

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  
Polytechnic of Medimurje in Cakovec



# Economic and Social Development

81<sup>st</sup> International Scientific Conference on Economic and Social Development –  
"Green Economy & Sustainable Development"

## Book of Proceedings

Editors:

Zoltan Baracscai, Ivana Bujan Katanec, Tomislav Hublin



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## **Economic and Social Development**

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"Green Economy & Sustainable Development"

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# PROJECT MANAGER'S SOCIAL RESPONSIBILITY: ENSURING WORK-LIFE BALANCE AND EQUAL OPPORTUNITY IN PROJECT TEAMS

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## **ABSTRACT**

*In order for project management field to become more sustainable, project managers need to start paying more attention to well-being of team members. Strict deadlines, work overload and work-related stress can lead to poor work-life balance and prevent some social groups from job advancement leading to weakened well-being and poor performance. This study intends to explore interventions employed in project setting with the aim of establishing good work-life balance and ensuring equal opportunity for team members. Specifically, study looks into project manager's practices and behaviors in order to understand his or her role in achieving sustainable workplace for project team. In order to fulfill the objectives of the paper, literature review was conducted. Findings show that in order to improve good work-life balance and ensure equality, project managers need to first and foremost tackle the "long hours" culture of project management that equals presenteeism to commitment and good results. Secondly, research shows that team members are highly appreciative of work-life interventions like longer weekends, educations and longer pauses after intense periods but the crucial factor in success of such initiatives is the support from project managers who need to be flexible and establish good work-life balance themselves to prove that such behavior is acceptable. Thirdly, project managers need to ensure transparency and fairness in decision-making regarding project appointments and ensure that opportunities are not filtered through the image of ideal project worker that still appears to be "young man fully dedicated to his job". Study concludes that satisfying team members' needs for good work-life balance and equality is both socially responsible and leads to greater project success.*

**Keywords:** *Equal opportunity, Project teams, Social sustainability, Sustainable project management, Work-life balance*

## **1. INTRODUCTION**

When thinking about influencing sustainability with their projects, leaders tend to focus on "big and important" sustainable development issues like poverty in third world countries, climate change or human rights in supply chains. That results in project leader potentially neglecting sustainability, thinking their project are not affected by nor can affect such issues. However, those project leaders are missing one "crucial, but often neglected part of sustainability" which is well-being of project team members (Silvius et al., 2011:73). Projects are characterized by strict deadlines and tight budget (Cobb, 2012) leading to poor work-life balance and work-related stress (Turner et al., 2008) which can result in weakened well-being (Hämmig and Bauer, 2009) and job dissatisfaction.

Furthermore, because of the specifics of project work environment equal opportunity and career development can be out of the reach for certain groups like women and single parents (Crawford et al., 2013). In such settings, a project manager has a social responsibility (Silvius 2010, cited in Silvius 2011) to take into account the impacts of project work environment on individual's well-being and ensure social sustainability through interventions related to work-life balance and equal opportunity for career development of his or her team members. Integration of sustainability in project management is addressed by growing number of studies (Sabini et al., 2019) however there are still some areas that need further research. One of the project management practices that lack research is sustainable management of project teams (Silvius, 2015). When leading project teams, project leaders should consider social sustainability aspects like personal development, equal opportunity and work-life balance (Silvius, 2015) and seize the opportunity to positively influence the sustainability of the organization. More sustainable project management would not only increase the well-being of team members, but would also be beneficial to the project success (Bradley et al., 2010). Namely, success of project managers is measured on two dimensions of performance: firstly, meeting project expectations i.e. being on time, within the budget and delivering the agreed quality and secondly, meeting people's expectations which means their values are respected, team members feel fulfilled and they success together as a team (Wong, 2007). Project managers lead both people and projects, therefore in order to be successful project managers need to understand and satisfy their project team's needs. When leaders fail to meet human intellectual and emotional needs, projects fail, whereas when team members are motivated and their interests are respected, "enormous human energy and productivity is created" which is needed for successful execution of projects (Wong, 2007:15). Thus, satisfying project team members' need for good work-life balance and equal opportunity is both socially responsible and good for the project. Regardless of their importance, aspects of social sustainability of project team management have been only marginally covered in standards for project management processes (Silvius, 2015) and project leadership literature (Carvalho, 2017; Chofreh et al., 2019). This paper reviews project management literature with a purpose to (1) investigate different interventions employed for improving work-life balance and to understand the role of project manager in success of such initiatives and (2) to explore the role of project manager in ensuring equity of opportunity for career advancement.

## **2. THEORETICAL FRAMEWORK**

This chapter presents theoretical understanding of work-life balance and equal opportunity seen as two social sustainability aspects that are important for satisfaction and well-being of team members. Furthermore, chapter introduces stakeholder orientation which is seen as perspective that contributes to the sustainability of project management by claiming that in order for project to be a success, project managers need to respect and act upon stakeholders' interests and needs, among which are need for good work-life balance and equal opportunity for advancement.

### **2.1. Stakeholder orientation in project management**

In the literature of sustainable project management, stakeholder orientation is seen as an important concept related to sustainability (Barendsen et al., 2021). Stakeholder theory emphasizes the need to create value for all stakeholders, perceived as individuals or groups that are affected by or can affect organization's activities and decisions, such as suppliers, customers, contractors, local community and employees (Freeman, 2010). In traditional project management stakeholders are seen as providers of resources (Barendsen et al., 2021). However, in sustainable project management with the application of stakeholder orientation, stakeholders are not seen as only providers of resource but rather their needs, interests and ideas are taken into account and acted upon (Eskerod an Huemann, 2013).

Eskerod and Huemann (2013) refer to such stakeholder management as “management for stakeholders” opposing to traditional “management of stakeholders”. Project team, defined as „a group of people with complementary skills and experiences, working together to accomplish the goals and objectives of the project“ (Wong, 2007:17), is involved in planning and executing the project which makes it one of the most important project’s stakeholders. Since project team members are seen as important organizational stakeholder and important factor of project success (Wong, 2007), it is essential that project leader considers their needs and interests.

## **2.2. Work-life balance and equal opportunity**

Project-based work was always characterized as stressful and intense in terms of time pressure and workload (Turner et al., 2008), and with development of communication channels and teleworking, project managers more often fail to meet the needs of team members for good work-life balance (WLB), which is one of the sustainability aspects of project work environment. Work-life balance relates to distribution of one’s time to work, family, vacation, health, education etc. (Irfan et al., 2021) and it is defined as “the extent to which an individual is equally engaged in—and equally satisfied with—his or her work role and non-work role.” (Greenhaus et al., 2003:513). Greenhaus et al. (2003) identified three dimensions of work-life balance: time balance (amount of time devoted to different roles), involvement balance (level of involvement in different roles) and satisfaction balance (satisfaction with different roles). If individual is unable to balance demands for participation between different roles then work-life conflict appears (Hamming and Bauer, 2009). Project work is characterized with unexpected events that require intense work to complete requirements and under strict time and budget constraints that often leads to work overload (Turner et al., 2009) and work-related stress (Irfan et al., 2021). Work-life imbalance leads to poorer quality of life (Greenhaus et al., 2003) caused by health issues like fatigue, depression and low energy, insomnia, cardiac issue and vulnerability to illnesses (Hämmig and Bauer, 2009) but also to lower productivity in the workplace (Irfan et al., 2021). It is generally considered that good work-life balance promotes individual’s well-being (Greenhaus et al., 2003; Turner et al., 2008) and increases loyalty and retention, enhances employee’s motivation and improves the productivity leading to better project performance (Panday and Bhagat, 2018). Another sustainability aspect related to project work environment is equal opportunity for career advancement. Project workers are self-directed in managing their careers and their career choices are guided by their love for flexibility, freedom and learning (Lloyd-Walker et al., 2016). They take responsibility for their own career development by searching for and accepting different opportunities. However, organizations and project managers still have important role in development of project personnel. From human resources management perspective working on the project includes three phases: 1. assignment to project, 2. employment in project and 3. dispersement from project (Huemann et al., 2007). According to Huemann et al. (2007) project managers can impact career advancement in first phase through choice of team members, in second phase when assigning tasks within projects (Turner et al., 2008), providing feedback (Huemann et al., 2007) and mentorship (Crawford et al., 2013) and in third phase through including personnel in training, giving them access to social activities and helping them become part of the network (Huemann et al., 2007). Project managers need to create environment and project processes that will ensure equal opportunity for all team members to advance in their careers.

## **3. LITERATURE REVIEW**

Literature search was done through Malmo University Online Library using “advanced search” option. The aim of the search process was to identify articles exploring project manager’s role in well-being and equal opportunity in project teams. Search was conducted with following key words: “well-being”, “project-oriented organizations”, “project manager”, “work-life balance”,

“equal opportunity”, “career advancement”, “gender equality in projects” and “work-life strategies”. Searches were limited with time period from 2001 to 2021 and with journal articles as literature type. Preliminary literature review, eliminated articles that were not relevant to the topic, i.e. articles addressing non-project settings and articles whose purpose is to investigate and describe work-life balance and equal opportunities. Such articles are excluded from the literature review since they are not addressing project managers’ strategies and leadership behaviors connected to management of work-life balance and ensuring equal opportunities in their project teams.

	Authors & title	Methodology	Conclusion
1.	Bradley, L., Brown, K., Lingard, H., Townsend, K., & Bailey, C. (2010). “Talking the talk and walking the walk: How managers can influence the quality of work-life balance in a construction project”	Longitudinal case study on Australian construction company. Through semi-structured interviews with 19 employees, researchers were able to monitor and measure success of introduced WLB interventions.	PM has a crucial role in success of WLB initiatives. With their attitudes and behaviors, they can encourage or undermine changes required for greater WLB among employees.
2.	Lingard, H., Francis, V., & Turner, M. (2012). “Work-life strategies in the Australian construction industry: Implementation issues in a dynamic project-based work environment”	This longitudinal single case study applied “action research” approach through which they involved employees in design and implementation of WLB interventions. They used both questionnaires (92) and interviews (7) to collect data from participants.	Research pointed out the problem of “long hours” culture that prevented employees in using WLB benefits. Also, they emphasized the need for clear communication about WLB options and need for project managers to establish good WLB themselves.
3.	Panda, A. and Sahoo, C.K. (2021). “Work-life balance, retention of professionals and psychological empowerment: an empirical validation”	This cross-sectional study did a quantitative research on sample of 283 IT professionals in India. Data was collected through structured questionnaire.	The study pointed out the need for project managers to bring about appropriate interventions that create more significant and value driven professional life. Adoption of a culture of synergy, self-awareness, collaboration, sense of well-being, autonomy and partnership can increase psychological empowerment among professionals and results in greater work-life balance.
4.	Turner, M., Lingard, H. and Francis, V. (2009). “Work-life balance: an exploratory study of supports and barriers in a construction project”	Researchers used single case study and collected data on barriers and facilitators of WLB from 43 full-time construction employees who participated in the focus group.	Study concluded that consistency in WLB policies over time and over different projects, flexibility of working hours and support from project managers contributed the most to perceived work-life balance among participants. Study also noted the importance of changing the “long hour” culture and need for managers to be role models.
5.	Beverley Lloyd-Walker, Erica French, & Lynn Crawford. (2016). “Rethinking researching project management : Understanding the reality of project management careers”	Qualitative research using semi-structured interviews with 75 project workers from 3 industry sectors in Australia was used in order to explore social and human issues in respect to PM career development.	Respondents acknowledged the importance of self-management of career development through personal learning, networking and negotiation. Findings suggest that those who continue to be in PM roles have high self-efficacy and coping efficacy to deal with uncertainty. However, researchers acknowledge lack of opportunities for career advancement for women despite them having the same preference for this type of work as men.
6.	Chasserio, S. ( 1,2 ), & Legault, M.-J. ( 3 ). (n.d.). “Discretionary power of project managers in knowledge-intensive firms and gender issues.”	Researchers did a qualitative study in 7 Montreal ICT companies, interviewing 88 highly skilled workers, whose work was organized around projects, about job advancement rules, HR management practices and career opportunities.	In the culture of long hours, project managers are rewarding presence and availability which is discriminating against women who are unlikely to meet those flexibility standards due to family roles. WLB issues were discussed on case-by-case basis which gives a lot of power to project managers who continue to ignore multiple dimensions of employee’s lives. Those who asked for WLB arrangements were less likely to be considered for promotion.
7.	Crawford, L., French, E., & Lloyd-Walker, B. (2013). “From outpost to outback: project career paths in Australia”	Qualitative research with in-depth interviews with project managers from three Australian industry sectors on career experiences, workplace support and mentoring for career development.	The main contribution of the study is investigation of issues in respect to career path and development in project management. Study acknowledged that despite official policies on gender equality there are still less opportunities for women in project management. They also concluded that organizational support in form of career development will potentially become point of competitive advantage in the future.
8.	Marzena Baker, & Erica French. (2018). “Female underrepresentation in project-based organizations exposes organizational isomorphism”	Researchers employed exploratory interpretive approach and interviewed 16 female project managers from Australian construction and property industries in order to investigate structural career barriers.	Findings support the thesis that process of normative isomorphism continues to reproduce female underrepresentation in organizations. Researchers point out that structural career barriers unique to project management include: work practice, presenteeism, reliance on career self-management and the filtering of personnel in recruitment and promotion practices.

*Table 1: Methodology and conclusions observed in reviewed literature  
(Source: Created by author)*

### **3.1. Project manager's impact on success of work-life balance interventions**

Work-life balance (WLB) interventions are defined as „changes to organizational policies and practices which are designed to improve the WLB experience of workers“ (Bradley et al., 2010:590). Interventions presented in the literature include change in the duration of the work week, greater flexibility in working hours, team building and team mindset activities and leadership and healthy lifestyle workshops. Firstly, changes in workers week schedules proved to be effective strategy for WLB. Namely, reduction of work week from 6 to 5 days to get extra day of rest (Bradley et al., 2010) and longer pause of 3 days between work weeks (Lingard et al., 2012) were generally accepted as positive among team members because they allowed greater balance in time dimension mentioned in Greenhaus et al. (2003). Literature shows (Turner et al., 2008) that project managers can be too task oriented so leadership training in people skills can be effective for better WLB in workplace. Indeed, both Bradley et al. (2010) and Lingard et al. (2012) introduced some form of leadership training for project managers to help them improve people skills (defined in Northaus, 2016) that would help them support work-life balance of their team members. Furthermore, study (Bradley et al., 2010) shows that educational and team building activities in the workplace can improve WLB. Bradley et al. (2010) introduced workshops on topics such as healthy diet and stress management where employees could learn how to be more involved in their non-work roles and lead more healthy lifestyle, and team building activities that resulted in more friendly work environment and sustainable workculture which proved to be a success. Panda and Sahoo (2021), on the other hand, have slightly different approach for achieving better WLB in the workplace. While Bradley et al. (2010) and Lingard et al. (2012) focus on reducing time spent at work and improving involvement in non-work roles, Panda and Sahoo (2021) point out the need to work on satisfaction with work roles. They state that in order to develop positive work environment, project managers should encourage team members to face challenges that could enhance their abilities and skills required for completing projects. They claim that greater sense of control and competency improves their involvement and satisfaction (dimensions of work-life balance presented in Greenhaus et al., 2003), with work role leading to greater work-life balance. Researchers (Panda and Sahoo, 2021) also point out greater need for team member's autonomy in decision-making and dealing with time and information requirements in order to establish greater involvement and satisfaction with their work-role. This leads to a conclusion that in order to be successful, interventions need to improve one or multiple dimensions presented in Greenhaus et al. (2003): time spent in different roles, involvement in work and non-work roles and satisfaction with performance in both roles. Studies have shown that project managers have important role in ensuring work-life balance in their team since they can encourage or discourage members to participate in work-life balance programs, they can set norms and influence informal work culture and they can show support for WLB in their promotion, rewarding and other policies (Turner et al., 2009). To begin with, norms in workplace as part of informal team culture have an important role in work-life balance since team members can feel that their lack of presence in a project (e.g. leaving on time) can jeopardize their performance evaluation and future work opportunities and can be seen as lack of commitment which could lead to impaired relations with colleagues (Turner et al., 2009). This is especially true in “long hours” culture which equate long hours to commitment and productivity. Furthermore, success of WLB interventions can be influenced by team mindset which can be modified by project manager. Lingard et al. (2012) pointed out in their study that project managers need to take responsibility for changing such mindset and establishing the culture that takes care of team members' well-being. Panda and Sahoo (2021) state that adoption of a culture of self-awareness, collaboration, sense of well-being and autonomy can increase psychological empowerment among professionals and result in greater work-life balance.

Lastly, studies (Bradley et al., 2010; Lingard et al., 2012; Turner et al., 2009) pointed out the importance of project managers being a role model to project team. When project managers used work-life benefits and were supportive and encouraged workers to use them as well, then workers felt more comfortable in using such benefits themselves. Additionally, a lot of workers need assurance from project manager's side that such behavior is acceptable and won't affect their future career and performance evaluation. Overall, WLB interventions are more likely to succeed when there is a shift in team mindset and informal work culture and when team members receive strong support from project managers through flexibility, communication and role model behavior.

### **3.2. Project manager's role in career advancement of project team members**

Career development for project workers depends on reputation built through previous assignments (Chasserio and Legault, 2010; Baker and French, 2018), access to informal social networks (Baker and French, 2018) and negotiation skills (Lloyd-Walker et al., 2016). Research show that women can be disadvantaged in all three aspects. Firstly, in project-based environment, long hours and presenteeism, i.e. being available to project manager at all times are seen as commitment and professionalism (Chasserio and Legault, 2010; Baker and French, 2018). However, such behavior can be out of the reach for women who continue to carry the burden of family care (Chasserio and Legault, 2010). That lack of visibility is seen as lack of commitment, reliability and dedication (Chasserio and Legault, 2010) which is why women are less likely to be offered the opportunity to participate in challenging projects, lead major projects (Baker and French, 2018) or get a promotion (Chasserio and Legault, 2010). In fact, due to lack of career support programs and training (Baker and French, 2018; Lloyd-Walker et al., 2016; Crawford et al., 2013), not being able to get the opportunity to participate in more advanced projects can be really impactful to women's careers (Crawford et al., 2013). Being excluded from such endeavors, women "miss out on opportunity to acquire new skills and build their reputation, which is essential for career advancement" (Baker and French, 2018). Secondly, Baker and French (2018) claim that women tend to be excluded from informal social networks due to mostly manly activities to which they are not invited and they struggle with getting access to them. For instance, female project manager in their research (Baker and French, 2018) mentioned rugby games that serve as bonding activities but are seen as something reserved for men, so she is not invited. Thirdly, negotiating salary, work assignments and new opportunities require negotiations with project manager. Negotiation relies on self-promotion, skill less likely to be demonstrated by females (Lloyd et al., 2016). Lack of informal network, reputation and visibility are preventing women to be considered for career advancement opportunities even if they demonstrate the same level of competence. Such informal rules and norms lead to inequality in project settings and underrepresentation of women (Baker and French, 2018). Even if there are policies regarding diversity and equity in the workplace (Baker and French, 2018) still a lot of decisions and opportunities depend on the discretionary power of the project manager. The Chasserio and Legault's research (2010) showed that for project managers interviewed, long hours was the most important commitment indicator, and they use overtime as a measure to determine who deserves a promotion. That is why individual requests for work-life balance arrangements can compromise career advancement. In fact, "Professionals who cannot fulfill their supervisors requirements for flexibility, presence, and dedication, such as mothers in particular, have fewer career opportunities and are less likely to be recruited for the most interesting projects" (Chasserio and Legault, 2010:244). Furthermore, Baker and French (2018) found that half of the participants question the transparency, credibility and fairness of appointments and advancement decisions within the organization.

Moreover, they claim that promotion practices are still influenced by gender-based favoritism and are subject to informal criteria which “suggest the presence of normative isomorphic practices and behaviors” (Baker and French, 2018:807). This points out the importance of project manager making requirements for career advancement official and transparent in order to ensure equal opportunity for all. Other than promotion practices, project managers can influence career development through role assignment and division of tasks (Crawford et al., 2013). Crawford et al. (2013:1183) point out that projects provide personal learning opportunities if “project roles are well chosen with opportunities to learn from others with the knowledge and expertise the individual wishes to develop to support their career objectives”. Project manager should provide variety of tasks and learning opportunities for project practitioners (Llyold et al., 2016) and support their career development by progressively moving project staff from smaller to larger projects, simpler to more complex projects and providing opportunity to work on different types of project in different types of roles (Holzle, 2010 cited in Crawford et al., 2013). To conclude, since majority of career advancement in project teams still depend on project manager’s discretionary power, it is his or her social responsibility to ensure equity of opportunities for all.

#### **4. CONCLUSION**

Studies (Bradley et al., 2010; Lingard et al., 2012) show that employees were highly appreciative of the opportunity to improve their work-life balance by engaging in formal arrangements like shorter work week, longer pauses before or after intense periods, team building activities and educational workshops designed to help them better balance work-life roles. However, the crucial factor for success of these interventions were project managers who were highly supportive and flexible when approached with requests from employees. Bradley et al. (2010); Lingard et al. (2012); Turner et al. (2009) point out that project managers have twofold roles in making workplace more sustainable: firstly, they need to design and implement multiple interventions for better work-life balance and secondly, they need to be role-models themselves and support their team members in improving satisfaction with (non)work roles. Project managers should act as role models and serve as an example of good work-life balance (Tarim, 2014). However, some authors suggest that could be hard for some project managers who are usually more task oriented and therefore leadership training is needed for development of people skills (Turner et al., 2008). Concerning career paths of project management, research show that project workers take responsibility for their own career development (Huemann et al., 2007) and that they stay in the project management for the flexibility, learning and challenge it offers them (Lloyd-Walker et al., 2016). With growing need for project managers and project workers, pool of professionals is getting more diverse, and especially visible trend is the growing number of women in project management (Crawford et al., 2013). Research (Chasserio and Legault, 2010; Baker and French, 2018; Lloyd-Walker et al., 2016; Crawford et al., 2013) show that women have difficulties in getting access to career development and that there is lack of career advancement opportunities for them due to traditionally manly work environment that favors presenteeism, long hours and availability. This implies the need for informal culture becoming more oriented towards individual’s well-being, need for transparency and fairness in decision-making regarding appointments and ensuring project manager’s opportunities are not filtered through the image of ideal project worker that still appears to be “young man fully dedicated to his job” (Chasserio and Legault, 2010:245). The common denominator of these two sustainability aspects is the informal culture of project management. Therefore, the first obstacle project managers need to overcome on their way to sustainability is the informal culture of project management that rewards presence and constant availability.

## 5. RECOMMENDATIONS

Overall, there is a lack of research focusing on success of different interventions and policies regarding work-life balance and equality in project settings (Lingard et al., 2012). Furthermore, majority of the research focuses on the construction (6/8 of reviewed articles) and IT (4/8 of reviewed articles) sectors, and there is lack of diversity in geographical positioning of the research (majority, i.e.75% of the reviewed research is placed in Australia). Longitudinal action research with qualitative data collection methods (Lingard et al., 2012; Bradley et al., 2010) proved to be the most informative and useful for understanding of the project manager's role in respect to WLB and equal opportunity. Having that in mind, the recommendation for future research is to apply a participatory approach in order to create interventions developed based on single organization's needs and follow up on success of such initiatives through longitudinal data collection. Moreover, it would be useful to conduct research in other types of projects and in a variety of countries. That kind of research would have practical implications through development of understanding how project managers can implement sustainability in project settings.

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## FASHION INDUSTRY UNDER THE INFLUENCE OF GREEN ECONOMY

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### ABSTRACT

*This article examines the problem of the impact of the environmental issue on the fashion industry and how premium and mass-market brands are responding to this problem. The relevance of the study is due to the fact that designers have been facing a non-trivial task for more than a decade - to create products and services that are both aesthetic, focused on human needs and environmentally friendly. The direction of sustainable design has been formed - an approach to designing products, environments and services that takes into account the principles of environmental, social and economic sustainability. Mass-market and luxury brands in pursuit of consumer attention are forced to respond to changes in the industry. These changes affect the transformation in the production process, its transition to more environmentally friendly and sustainable chains. The article presents an overview of scientific sources on environmental responsibility and the fashion industry, which made it possible to characterize the current state of research on the topic. The directions of the negative impact of the fashion industry on nature and the environment are revealed.*

**Keywords:** *Fashion industry, ecology, green economy, design, Brands*

### 1. INTRODUCTION

Ecologization of the economy has an important meaning, as long as the existing models of economic growth continue to deplete the reserves of natural assets and destroy the integrity of ecosystem services, from which depends economic activity [Mamedov, Qurbanov. 2022. 176]. The economy is dependent on the environment. Ecology and the economy go hand in hand, and it is impossible to separate them. To try to have an economy without ecology is to try to manage the environment without knowing or paying attention to how it works, to formulate human laws in abstraction or without knowing the laws of nature. Ecological culture should become the axiological basis of design, the basic methodology of design. In the triad of basic cultural values "man - society - nature" design can be a connecting thread and a catalyst for the exit from the ecological crisis, the solution of the problem of sustainable development and ensuring the harmony of society. Overcoming the crisis, related to environmental, demographic and military problems, is possible only if the conditions for changing our thinking, reconsideration of priorities and values. The formation of new foundations of world enterprise means the transition to a new stage of human existence and nature. Human beings need to be reorganized, to give up accustomed, inherited from past generations, standards in relation to nature.

The transition to ecological thinking means the assertion of humanism as the foundation of human activity. Day after day, the problem of ecology is becoming more acute in society, and the importance of ecological approach in design is growing with each passing year. "Ecological approach" is designed as a reaction to the synthetic 70s and 80s of the XX century, as a response to the negative consequences of the scientific and technological revolution. It is manifested in the universal use of natural materials, warm comfort palette of used flowers (earth, sand and bark), simple cozy forms of objects from natural woody lined with expressive ig. These characteristic drawings of ecological design have their continuation and are in line with modern trends in design, fashion and architecture. Ecological design of the end of the XX century today will become an ecological style, and it is nothing more than natural materials and natural colors. Its main goal is to harmonize the relationship of man with the surrounding world, to establish certain ethical principles in relation to the environment. Ecological orientation has led to the assertion of a new system of values in design. Sustainable development is a set of measures that need to take the branches of industry (for example, the fashion industry) to apply to a less vulnerable environment, which improves the economic and social situation. sustainable development - this is the interaction of industry and ecology. Because now the industry is moving on an "unstable" path, because the whole world (and we are together with it) can fall into an environmental catastrophe. Now, with the questions of sustainable development, local brands and large international companies are concerned. The main result so far is that the problem has become more widespread, and the environmental agenda has become relevant not only for small eco-brands, but also for large companies. The main problem of those who strive for sustainability, becomes the general ecology of the industry: after all, each brand does not exist on its own, but works with suppliers of fabrics, factories, transporters and not only. And in order to achieve their goals, eco-initiatives should be included in each stage of work. For example, to force a large factory to go to the new technology of sewing jeans, which requires less water, brands can, only by adding force.

## **2. A NEW BUSINESS SYSTEM CALLED "FAST FASHION" AND AN ENVIRONMENTAL PROBLEM**

According to the UN, for the last 20 years the volume of clothing production in the world has doubled, reaching 100 billion tons. Correspondingly, harmful choices were made during the production and delivery of textile products to the buyer of course. There is such a concept as "fast fashion" - this is a model of consumption, when clothing is inexpensive, but wears out faster, and therefore requires frequent updates of the wardrobe. Apparently, such an approach is a colossal blow to the environment. But there are problems with the production of designer items. The problem has become so global that neither producers nor consumers can close their eyes to it. Last year, a number of brands subscribed to the so-called Charter of the fashion industry to combat climate change. They have taken it upon themselves to reduce emissions by 30% in the next ten years, and by 2050 they plan to raise emissions to zero. However, some concrete steps will be taken to do this, it is not clear [<https://ru.euronews.com/culture/2019/12/11/fashion-sustainability>]. The fashion industry is one of the most polluting in the world. At the end of the 90's, the dominance of "fast fashion" restructured the entire industry, becoming the main reason for the huge emissions of greenhouse gases and destructive effects on the environment. As clothing, which we buy, leads to such destructive consequences? "Fast fashion" is a business model that promotes the rapid production of cheap clothing in line with new fashion trends. Unprecedented success of these brands in providing a mass of cheap and fashionable clothes brought a noticeable change in consumer behavior. The average consumer in 2014 owned 60% of the largest amount of clothing, compared to 2000. According to statistics, Americans bought five times more clothes in 2014, compared to 1980.

The price of such unexploited consumption is garbage, pollution and sweating system. In order to ensure a fast turnover, the company has reduced production deadlines to impossible values. The most logical and obvious consequence of "fast fashion" is an enterprise with a running system. With the goal of reducing emissions, companies are shifting their production to outsourcing in economically developing countries where labor is relatively cheap, and labor laws are almost non-existent. Unscrupulous scandals over bad working conditions, complete disregard for basic safety measures, low wages, forced labor at work and the use of child labor, created a lot of noise in the world that has never happened before. "Fast Fashion" also encourages the production of clothing of lower quality. The quality and durability have shifted in favor of cheap prices on clothing, which responds to modern fashion trends, but will be far behind the wardrobe shelves in the coming season. The biggest problem is that the life cycle of such clothes is very short and, most likely, in the course of several years it will come to the rescue. In 2014, 10.46 million tons of American clothing were dumped. Ignoring the fact that a large part of clothing is directed to charitable stores, only 15-20% of the initial amount reaches their shelf. so as the volume of clothing, which they receive, too high. It returns us to the question of production. How is all this unnecessary clothing produced and how much is spent on the protection of the environment from such production? Clothing is made of different materials, often a mixture of fabrics, which have their own advantages and disadvantages from the point of view of comfort, strength and cost of production. Cotton is found in 40% of all clothing, at the same time as synthetic fibers, such as polyester and nylon, in 72% of clothing items. At the same time, both materials are exposed to criticism for their negative impact on the environment [https://www.ekoenergy.org/ru/how-polluting-is-the-fashion-industry/]. "Fast fashion" is based on speed and low costs. She is inspired by performances from the podiums and the styles of celebrities. This speed has an impact on our environment, as the pressure to reduce the time and cost required to deliver the product to the shop without design means that environmental angles are likely to be reduced. However, criticism of fast fashion includes its negative impact on the environment: water pollution, the use of toxic chemicals and rising levels of textile waste. The most popular fabric used in fashion is polyester. When polyester products are washed in household washing machines, microfibers are released in the oceans, which increases the level of plasticity. These microfibers are a small system that easily passes from sewage and treatment plants to water channels. Because these microfibers do not break down, aquatic organisms, such as plankton that eat microfibers, end up in the food chain of fish and mollusks, which in turn pose a serious threat to humans. The use of toxic chemicals in the cultivation of cotton in agriculture also involves destructive processes. Most of the children of Indian cotton farmers have serious birth defects. This is due to the fact that cotton growing requires high levels of water and pesticides to prevent crop shortages, which can be a problem in developing countries that do not have sufficient investment and are at risk of drought. Most of the cotton grown in the world is genetically modified cotton to be resistant to pests, which increases productivity. But this, in turn, leads to the formation of weeds that are resistant to standard pesticides, as a result of which weeds are treated with more toxic pesticides that are harmful to livestock and humans. Bright colors, prints and fabric fade are attractive features of fashionable clothes, but most of them are obtained with the help of toxic chemicals. Textile dyeing is the second largest polluter of clean water in the world after agriculture. Textile waste is an unexpected result of "fast fashion" because more people buy more clothes and do not keep them for as long as before. Cabinets in developed countries are full, so in order to sell more goods, retailers need to constantly attract buyers and convince them that the goods they have are no longer fashionable. Also, the increase in current income levels in recent generations means that there is no need to "research and fix", because it is often cheaper and more convenient to buy a new product than to repair it. The development of sales areas, stores and regular seasonal sales make clothing "disposable", which has not been seen before.

As a result, interest in organic cotton, the abandonment of polyester, the development of waste-free production systems and the reuse of products is growing every year. Designers have begun to pay more attention to environmental issues. The fashion industry remains the second most polluting industry after the oil industry. According to forecasts, by 2030, 40% of the population will face a shortage of drinking water due to the rapidly growing "fashion". However, today many consumers choose environmentally friendly brands. In a world where trends change every season, the full transition to conscious production sounds like a fairy tale. But some democratic brands and premium brands have already tested the new ideology. Economic management complexes, methods, mechanisms and tools can be applied to protect the ecological system and reduce the pace of the concept of "fast fashion": increasing economic responsibility for excessive consumption of natural resources (exceeding certain limits) and environmental pollution; use of budget funds for the provision of subsidies to enterprises and organizations for the implementation of effective nature protection measures; granting economic players the implementation of effective environmental policy, financial benefits and other preferences; differentiation of taxation of enterprises depending on the degree of damage to the environment as a result of their activities; the imposition of taxes or levies on products whose consumption or disposal causes environmental pollution; creating incentives to save resources and reduce environmental pollution through the use of sedimentation systems for environmentally hazardous products that require special means for disposal or disposal; application of accelerated depreciation for nature protection equipment; investment tax incentives, low-interest loans, credit insurance; application of environmental ratings in order to improve nature protection investment activities. The concept of "fast fashion", which is part of environmental problems, is also part of the economy. In order to establish the interaction of economic and ecological systems in the light industry, the concept of "fast fashion" should be replaced by the concept of "sustainable fashion". Currently, there is a system in which luxury brands were produced a year ago for the spring-summer and autumn-winter seasons to announce future trends in the fashion industry. Such clothes are expensive for the middle class, it can be bought by high-income people, such as actors, musicians and singers, models and many others. Recognizing celebrities who can afford the luxury segment, the middle class follows trends and tries to look like them. Based on this, a new business system called "fast fashion" was developed. He came to the shopping center "Fast Fashion", in one place he chose the most relevant and fashionable set for the season - clothes, shoes, accessories. Next time came to get the next set of the season. The role of "fast fashion" is that today almost everyone can buy clothes on the podium at a relatively low price. In "Fast Fashion" the range is updated very often, so the two usual clothing seasons - spring-summer and autumn-winter have been replaced by 52 seasons. Clothes in retail stores are updated every 2-3 weeks so that consumers can get a cheap copy on the podium. Considering that the items were short-lived, people began to go to the store more often for fresh clothes. However, it should be noted that such a system in relation to production is extremely complex due to the need to increase its volume and speed. Many designers and world brands are fighting for the ecology of production, creating clothes from environmentally friendly materials, and recycling old fabrics to give them new life. In turn, "fast fashion" is a carefully designed system in the field of clothing, which aims to generate income quickly and plays an important role in the economy. Some countries are getting rich by selling clothes, while others, the poorer countries, are trying to support their domestic economies. The importance of "fast fashion" can be seen in the statistics of growth dynamics from sales. Clothes will always be bought, because it is a necessity. At the same time, the low quality of products causes consumers to constantly replace old clothes with new ones. It should be noted that the concept of sustainable development envisages a trio of economic, environmental and social components.

Enterprises operating in the sector in question and wishing to move to the category of "sustainable enterprises" are changing their strategies in all three directions. The textile sector, including cotton, consumes 93 billion tons of water a year. As the world's population grows, these figures will increase, and major cotton exporters are already facing the problem of limited and depleted water resources. It should be noted that even at the current pace of the economy, even cotton is not such an environmentally sustainable raw material. In addition to consuming large amounts of water, pesticides and chemicals are now widely used in cotton production, which has a negative impact on the ecosystems it cultivates. It should be added that most of the seeds of biological cotton varieties currently used in industry are genetically modified seeds, because the natural slow reproduction of cotton does not meet the requirements of "fast fashion". Genetically modified cotton contains protein toxins that have a negative effect on living organisms. If the current business model does not change significantly, the share of the textile industry in the global carbon budget by 2050 will be 26%, which will lead to an increase in the average temperature of the climate system by 2° C. Another negative impact of the industry on the environment is pollution. As mentioned above, ecosystems are exposed to chemical pollution directly related to production. Most of the chemical dyes used in the textile industry are toxic, bioaccumulated (can accumulate in the body) and are "hormonal destroyers". In addition, the "disposability" of the clothes produced is affected. 53 million tons of clothes are produced annually, 73% of which are either in landfills or burned. Most textiles are not recycled. It should also be noted that when washing clothes made of synthetic fibers, especially low-quality, they stratify, and then the oceans become polluted with microplastics, which leads to a decrease in marine biodiversity. Leather production for the fashion industry also causes serious damage to the environment, primarily due to high levels of greenhouse gases and chemicals used in leather processing. Corporations see the solution to this problem in the use of artificially grown leather. The future of the fashion industry is in the transition to a closed-loop economy, and companies are forced to adapt to a changing market and significantly modernize their production methods.

### **3. "SUSTAINABLE FASHION" AS A NEW TREND IN FASHION**

Eco-friendly fashion (or eco-fashion) is a trend in fashion that is aimed at caring for the environment. Sustainable fashion takes into account the health of consumers, the health of the planet (soil, water, energy, gases, waste), the health of animals, the health of people working in the fashion industry. This includes not only the production of clothing, but also the cultivation of raw materials, distribution of goods, packaging, retail, logistics, and so on. Eco-fashion is characterized by: the use of organic fabrics; using fabrics with the least negative impact on nature (eco-friendly fabrics); a decrease in the indicators of the ecological footprint from industries (reduction in the volume of water, electricity, various gases, garbage, chemicals used); dyeing fabrics in natural dyes or eco-friendly dyes (with the lowest content of chemicals in the composition); the design of things for long-term use in order to reduce the level of consumption; quality working conditions for people employed in the industry (without discrimination, child labor); restoration of world/regional biodiversity. The priority tasks of eco-fashion are: not to harm the flora and fauna in the production process; not harm people working in production; do not harm consumers who will wear the clothes produced. Ethical fashion is characterized by: transparency (open information on factories, working conditions, people who work in production, as well as pricing); observance of human rights; respect for animal rights; the absence of animal tissue, or the presence of animal tissue that has been ethically sourced; lack of female discrimination; lack of child labor; supporting local culture; local production of collections; using eco-fabrics; thoughtful design for long-term use of the thing. The priority tasks of ethical fashion are: to make information about production open (transparency); do not harm animals that produce raw materials for fabrics; improve the quality

of life of industry workers, improve working conditions and wages. However, it is almost impossible to verify brands that claim to be environmentally friendly. Neither in Azerbaijan nor in Western countries there are laws that enshrine the concept of "sustainability" and "environmental" for clothing labeling, which means that everyone can use them as they want [[https://fashiontoknow.ru/eco\\_ethical\\_fashion](https://fashiontoknow.ru/eco_ethical_fashion)].

#### **4. THE NEW MOVEMENT IS "SUSTAINABLE FASHION"**

A new movement called "sustainable fashion" is aimed at making clothes more sustainable by making changes at the design, production, distribution and disposal stages. The task is to get away from the principles of "fast fashion" - high-speed production of clothes, by the way, not always cheap. Speed is needed due to constantly changing tastes and trends, which leads to a one-time attitude towards such things from consumers. There is also the theme of caring for animals, and the theme of social responsibility of the industry. In the latter case, we are talking about the fight against child labor and poor working conditions in developing countries. [<https://trends.rbc.ru/trends/green/5d6698179a79475d5428f7d9>]. With global apparel production doubling over the past 15 years, CO2 emissions from the textile industry are higher than those of the shipping and international travel industries combined. Cotton and polyester account for 85% of the raw materials in the production of clothing, and both of these materials are far from environmentally friendly. Two years ago, 94 firms, representing a combined 12.5% of the fashion market, signed the Global Fashion Agenda 2020 agreement. According to it, each company has a set of individual goals, while the overall goals are to use water more efficiently, develop sustainable fibers and create new systems. processing. Some brands also have their own initiatives. For example, Adidas has promised to use only recycled plastic by 2024. H&M aims to be 100% recycled and sustainable by 2030. PVH, owner of the brands Calvin Klein and Tommy Hilfiger, intends to use raw materials only from sustainable sources: for cotton and viscose by 2025, for polyester by 2030. RBC: [<https://trends.rbc.ru/trends/green/5d6698179a79475d5428f7d9>]. As part of its G7 Presidency, France (by the way, the home of many popular brands) is now leading the transformation of the fashion industry towards greater environmental responsibility.

#### **5. CONCLUSION**

So, overcoming the crisis associated with environmental, demographic and military problems is possible only if we change our thinking, reconsider priorities and values. The formation of new foundations of world perception means a transition to a new stage in the existence of man and nature. Mankind needs to rebuild, abandon the usual, inherited from past generations, standards in relation to nature. Ecological orientation led to the establishment of a new system of values in design. The fashion industry has a detrimental effect on the environment. And yet there are ways to solve the problem, such as greening consumption, creating an environmentally correct style, recycling, replacing natural fur and leather with artificial ones, focusing on the implementation of personal orders, and the formation of a new value system. Environmental ethics as a professional competence of designers is necessary for the harmonious development of civilization, the preservation of life on the planet and the well-being of mankind. In their projects, professionals should take into account the impact that design objects will have both on the culture and worldview of people and on the natural environment, broadcast a caring attitude towards nature, an ecocentric consciousness.

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# THE CASH CONVERSION CYCLE: A SYSTEMATIC LITERATURE REVIEW

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## ABSTRACT

*The cash conversion cycle (CCC) reflects the time it takes a firm to transfer its cash outflow from purchases to cash inflow from sales, and it is an indicator of a firms' efficiency in managing its operations to generate cash. The purpose of this paper is to provide a comprehensive review of the business literature exploring the determinants of the CCC, its effect (i.e., direct and indirect) on firms' value and performance. To do this, we conducted an analysis of papers published in journals classified as either 3, 4, or 4\* according to the Association of Business Schools (ABS) journal guide. Regarding the internal factors, previous studies found that some firm-level factors such as the geographic dispersion of sales network, seasonality, the existence of directors from related industries in the firm's board of directors, the existence of a chief supply chain officer in the management team, executives' characteristics (such as age), and different financial characteristics (e.g., fixed assets, cash, cash flow, cost structure, leverage, financial constraints, growth, or profitability), are likely to determine the cash conversion cycle. Regarding the external factors, previous studies found different determinants such as the, bullwhip effect, legal systems, the development of capital markets, and economic uncertainty. Further analysis reveals that the effects of CCC on a firm's performance and profitability are contradicting among studies, and these effects are influenced by several factors such as the financial constraints of supply chain partners and firm size. This study could help both academics and practitioners interested in this topic, and provide a guide for future research to cover the gaps in previous literature.*

**Keywords:** *Cash conversion cycle (CCC), literature review, determinants, value, performance*

## 1. INTRODUCTION

The cash conversion cycle (CCC) definition goes back to Gitman (1974) who defined it as the effective use of funds (Farris and Hutchison, 2002; Kling et al., 2014; Mättö and Niskanen, 2021). The CCC measures the time that the firm's cash is tied up during its course of operations (Lin and Lin, 2021; Wang, 2019), and it is a metric of firm's power in generating cash and obtaining better credit terms, as well as an indicator of the need for external financing (Banerjee et al., 2021; Carnovale et al., 2018; Claessens et al., 2012; Castellares and Salas, 2019; Cho et al., 2019; Klapper et al., 2012; Fox, 2014; Laik and Mirchandani, 2021; Liebl et al., 2016; Wang, 2019). The CCC measures the average time (in days) between the firm's cash payments for its inputs to the time of cash receipts from sales (Chauhan, 2019; Kroes and Manikas, 2014; Laik and Mirchandani, 2021). Thus, CCC represents the firm's efficiency across four stages within its supply chain: procurements, operations, sales, collections and payments of money (Banerjee et al., 2021; Laik and Mirchandani, 2021; Wang, 2019). Hence, the CCC also used as an indicator of the leanness in the supply chain (Hendricks et al., 2009). The CCC is calculated as days sales outstanding (DSO) plus days inventory outstanding (DIO) minus days payables outstanding (DPO), or alternatively, as firms' Operating Cycle (OC) (DIO+ DSO) minus DPO (Kroes and Manikas, 2014; Lin and Lin, 2021).

DSO measures the days between selling of products or services and the collection of cash from sales. DIO measures the days inventory hold in the company as raw materials, work in progress, and finished goods. DPO measures the days it takes the firm to pay its suppliers (Bigelli and Sánchez-Vidal, 2012; Kroes and Manikas, 2014). The CCC differs from static measures such as working capital since it is a dynamic measure of firm liquidity (Farris and Hutchison, 2002; Kling et al., 2014). Moreover, even if both working capital and CCC are metrics of firm's liquidity, they can move into opposite directions (Laik and Mirchandani, 2021). Although CCC and its components are financial measures, those factors are influenced by operational decisions (Kroes and Manikas, 2014; Laik and Mirchandani, 2021; Özbayraka and Akgün, 2006). Firm's working capital has been covered heavily in corporate finance literature, while its consideration from operations and supply chain point of view is dated back to Farris and Hutchison (2002) (Brandenburg, 2016). Additionally, while CCC focuses on a single firm, and since managing firm's CCC will affect the CCC of its partners in the supply chains, de Boer et al. (2015) introduced the so-called Collaborative Cash Conversion Cycle (CCCC), which refers to the optimal combination of all supply chain members (Chakuu et al., 2019). In general, firms can decrease (increase) CCC by extending (shortening) suppliers credit period, decrease (increase) process lead time, and/or decrease (increase) customer credit period (Cho et al., 2019; Farris and Hutchison, 2002; Laik and Mirchandani, 2021; Tsai, 2008; Vázquez et al., 2016). However, the decrease (increase) of firms CCC is at the expense of their upstream and downstream partners in the supply chain (Cho et al., 2019). The interest in firm's cash management including the management of working capital increased after the recent financial crisis (Chen et al., 2017). Despite its importance, to the best of our knowledge, there is not a comprehensive literature review on the CCC. This paper aims to fill this gap. We contribute to research on CCC by providing a comprehensive review of its determinants and how it affects firms' performance and value. This may help managers in managing the CCC in more efficient ways. In addition, the content analysis highlights the gaps in the literature which help academics to identify topics for future research. The rest of the paper is organized as follows. In section 2, we describe our methodology. Section 3 presents a descriptive analysis. Section 4 shows the results of our content analysis. Finally, Section 5 presents the conclusions and limitations of this study.

## **2. RESEARCH METHODOLOGY**

To conduct our systematic literature review, we first define our keywords related to the research topic we are interested in. After identifying the keywords, we follow three steps as in previous literature: 1) collect materials, 2) provide descriptive analysis, 3) conduct a content analysis to answer research questions (Kazemi et al., 2019; Xu et al., 2018). The purpose of this study is to explore the determinants of the CCC, investigate the effect of CCC on firm's performance and value, and finally, highlight the gaps in the literature that could be covered by future research.

### **2.1. Defining search terms and databases**

In this step we define the keywords used to search for the most relevant literature of our topic of interest. We choose two keywords for our search: cash conversion cycle and cash to cash cycle. Two search engines were used to collect our data: Scopus and Science Direct databases.

### **2.2. Data collection**

The search was limited to papers in academic journals (excluding all other sources such as conference proceedings, books, book chapters, etc.), written in English language, with no time limit. We use Mendeley software for collecting and classifying articles. The initial search from both databases resulted in 506 papers as shown in Table 1, and after eliminating the duplications, the number of papers dropped to 463.

Then we chose papers published in journals classified as 3, 4, or 4\* according to the Association of Business Schools (ABS) journal guide (Xu et al., 2018), and based on these criteria, we narrowed down our sample to 154 papers. For a paper to be considered for further review, the title, abstract, or keywords should include one of the keywords used for search in the databases or discuss topics related to the topic of interest. After a full review of the articles fulfilling this condition, our final sample includes 61 papers published between 2003 and 2021. Table 1 shows the results of the search in the databases regarding keywords, while Figure 1 shows the process of selecting papers according to inclusion and exclusion criteria.

Database	“Cash conversion cycle”	“Cash to cash cycle”
Science Direct	159	109
Scopus	221	17

Table 1: Number of papers based on keywords in each database

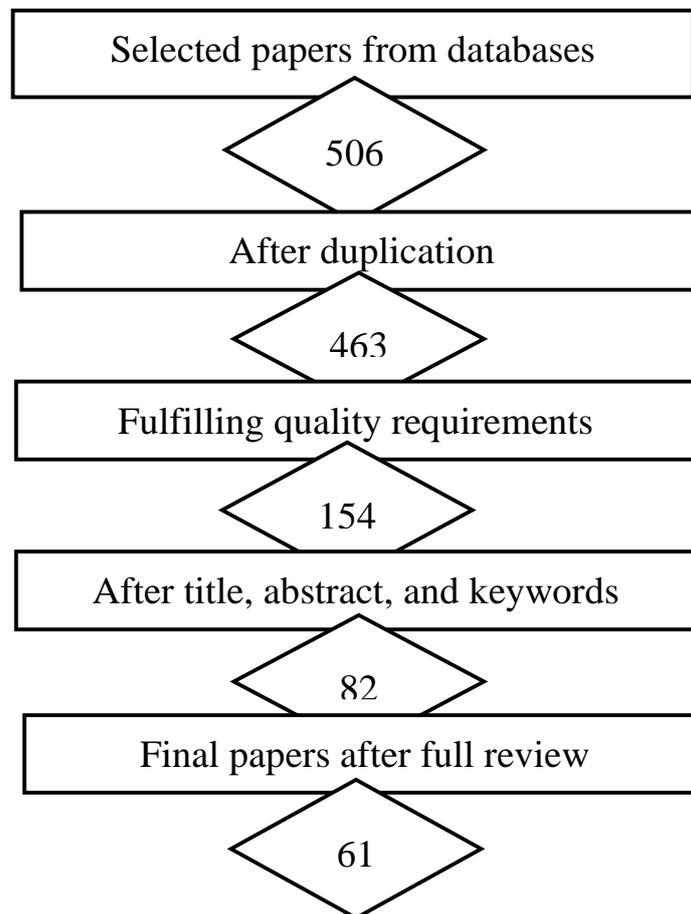


Figure 1: Data collection procedure

### 3. DESCRIPTIVE ANALYSIS

In this section, we conduct a descriptive analysis of the final sample of papers based on the year of publication, journal, methodology, industry, and country. The 61 papers in our sample were published from 2003 to 2021. Fig. 2 shows that there is an increasing interest in the CCC topic in recent years, with 54% of the publications published between 2017 to 2021, and the peak in 2021 with 11 papers.

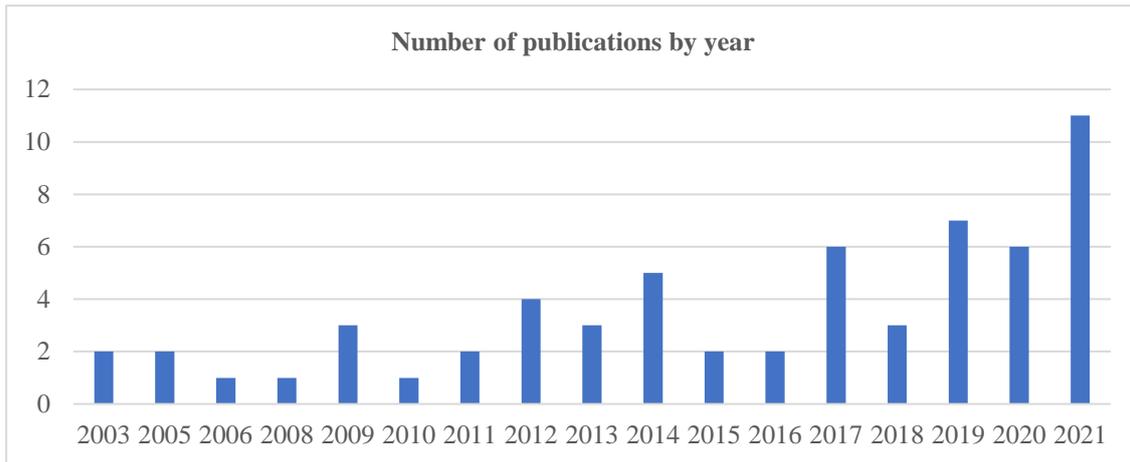


Figure 2: Distribution of publication by year

The articles in our sample were published in 31 journals rated as 3, 4 or 4\* according to ABS journal guide. As shown in Fig. 3, more than 34% of publications are published in the International Journal of Production Economics (21 papers), followed by Journal of Operations Management (4 papers). The other 7 journals mentioned in the Fig. 3 published 2 papers. The remaining 22 journals (not included in the table) published 1 paper each.

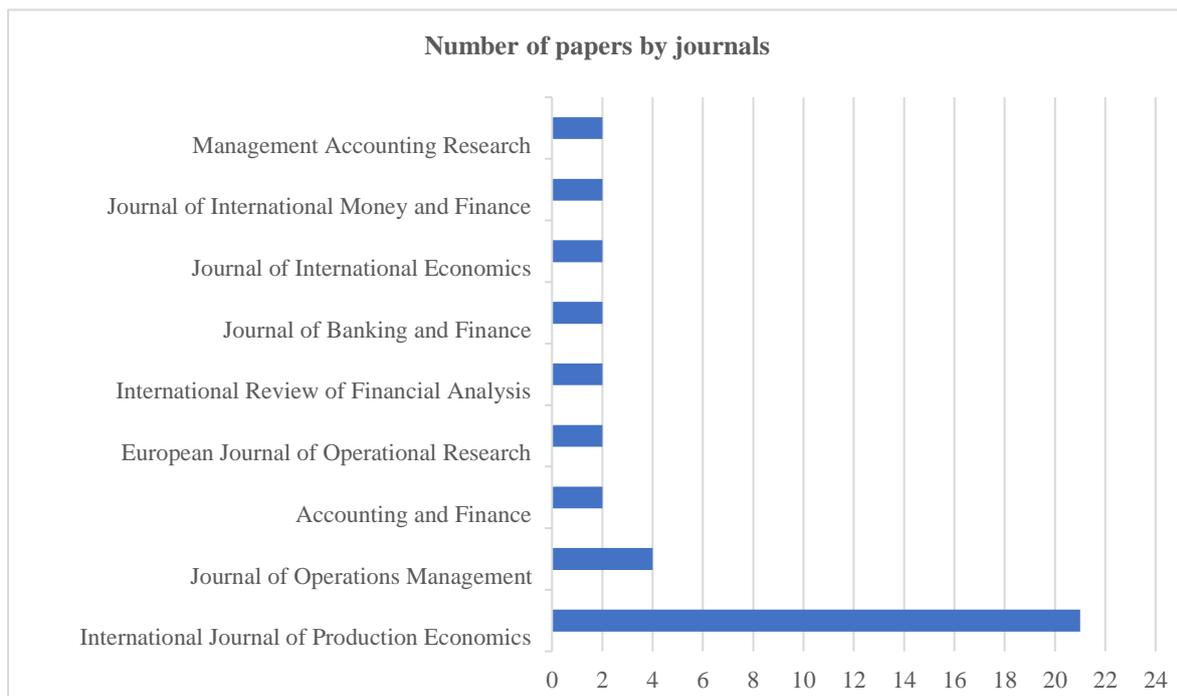


Figure 3: Distribution of publication by top 9 journals

The most common method used to investigate the CCC is statistical analysis, with 39 papers. Out of these papers, 34 used financial data (i.e., either at the firm, industry and country level of analysis), 3 papers use surveys, and 2 papers use both, surveys and financial data. We identified 3 papers using the case study methodology, 10 papers using analytic modelling and simulations, 1 article using the conceptual method, and 5 papers using a mixed methodology. Finally, we found 3 papers providing a literature review. These literature review articles are focused mainly on the supply chain finance topic, covering how the CCC of the firm and its partners will affect or will be affected by supply chain finance practices.

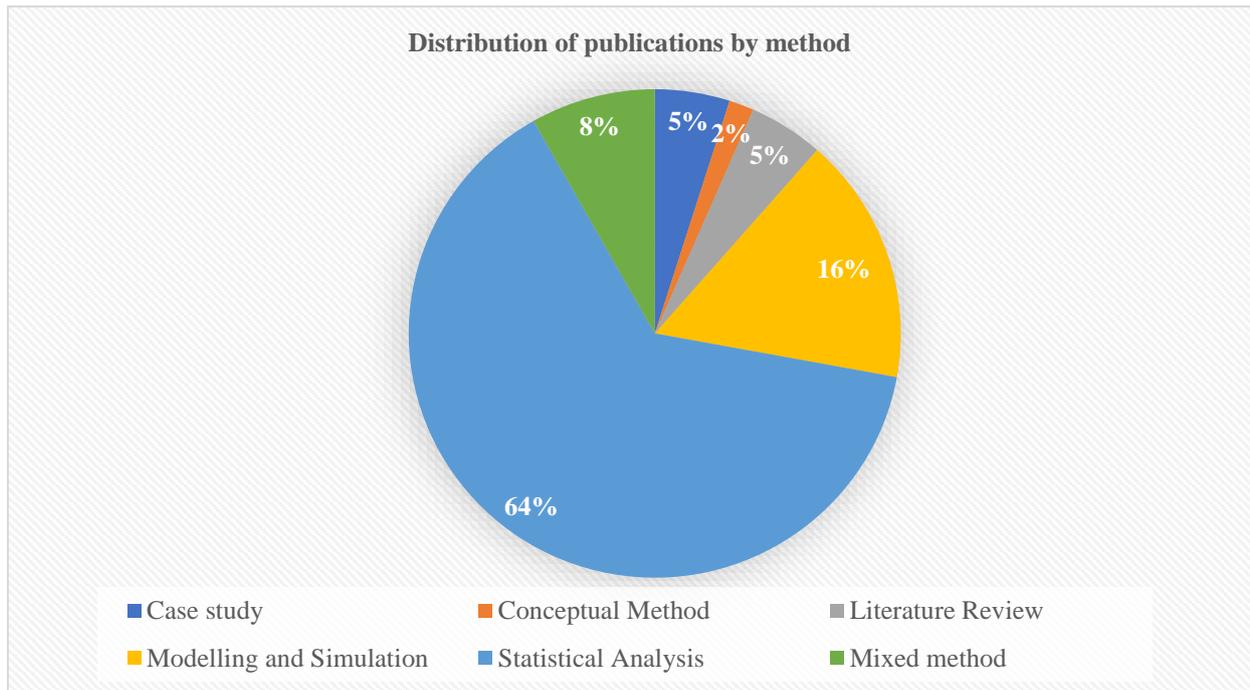


Figure 4: Distribution of publication by method

Previous studies suggest that firms' working capital and cash conversion cycle vary depending on the industry in which they operate (Baños-Caballero et al., 2010; Boisjoly et al., 2020; Dbouk et al., 2020). These differences across industries are a result of technological factors, production cycle, and credit periods (Howorth and Westhead, 2003; Lin and Lin, 2021; Wang, 2019). For example, commercial companies usually have a higher working capital and focus on short-term finance compared to companies in the industrial sector (de Almeida and Junior, 2014). Restaurant companies are more able to convert the non-cash part of their working capital faster than companies in other industries, thus, they do not need to hold high level of cash (Mun and Jang, 2015). Whereas internet retailers have a negative CCC because they receive payments from sales before delivering goods (Chen and Kieschnick, 2018). In other industries such as transport and service, the firm's CCC is negative indicating that firm's working capital is a source of finance for these firms (Baños-Caballero et al., 2012). In 30 of the papers in our sample (i.e., 49%), the industrial sector is either generalized or undefined. In the remaining 31 papers, based on SIC codes, the manufacturing industrial sector were represented in 87% of the papers (with a high focus on specific industries such as the automotive industry), retail trade in 29%, and construction in 23%.

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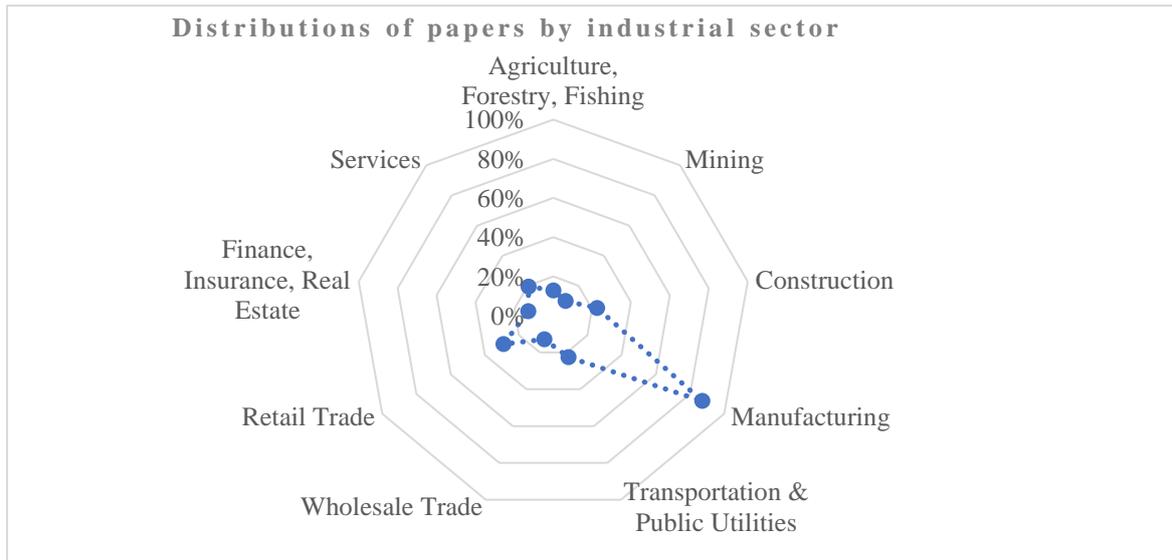


Figure 5: Distribution of publication by industry

The CCC level also differs between countries (Ding et al., 2013; Lorentz et al., 2012; Mättö and Niskanen, 2021). In our sample, 44% of papers (27 papers) do not define the specific country in which the research is focused on. Out of the remaining 34 papers that clearly identified the countries included in their sample, we can see from Fig. 6 that the majority of studies focus on the United States (14 papers), United Kingdom (6 papers), China (6 papers), India (5 papers) and other European countries, such as Spain (6 papers).

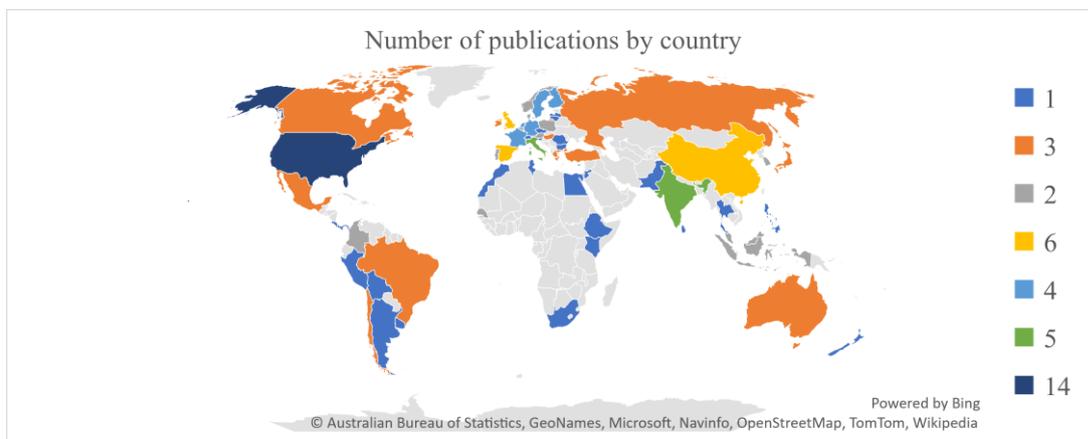


Figure 6: Distribution of publication by country

#### 4. CONTENT ANALYSIS

The systematic literature review was organized to facilitate the understanding of the determinants of CCC length and how the length of CCC affects the firm performance and value. We conduct a content analysis of the final sample of selected papers and each paper was systematically analyzed to answer our research questions.

##### 4.1. Determinants of the CCC

Firms' CCC and its components (i.e., inventory days outstanding, accounts payable days outstanding, and accounts receivable days outstanding) differ substantially between echelons in the supply chain (Brandenburg, 2016; Christopher and Gattorna, 2005; Lind et al., 2012; Saranga, 2009). In this section we provide the factors that determine the CCC at firm-level, supply chain-level, and country-level.

#### *4.1.1. Determinants of the CCC at firm level*

An important finding of Laik and Mirchandani (2021) is that firm's idiosyncratic characteristics such as the difference between firms in sales growth rate, fiscal year end, and seasonality are factors that should be accounted for when comparing firms' CCC. They interpret these effects because the measures use to compute CCC depend on demand (they assume demand is the same as sales), and the demand is determined by the interaction of the aforementioned factors with credit policies and processing lead time which affect CCC (Laik and Mirchandani, 2021). Dai et al. (2021) show that the productivity of firm increases firm's CCC and all its components, which means that productive firms play a significant role in providing and receiving credit with partners. Firm's size is also an important determinant of firm CCC. In general, smaller firms have longer CCC, which could be a result of lower negotiation power compared with bigger firms, or the lack of financial and managerial resources to enhance supply chain management (Bigelli and Sánchez-Vidal, 2012; Boisjoly et al., 2020; Cho et al., 2019; Higginson and Alam, 1997; Kling et al., 2014; Lorentz et al., 2012). Previous literature, also finds other several factors at firm level that also affect the CCC length. CCC is longer for older firms, firms with higher R&D, and firms with high cash flows. These findings could be explained by better access to external funds and the low cost of funds for these firms, which compensate the decrease of liquidity for firms with longer CCC (Banerjee et al., 2021; Baños-Caballero et al., 2010). While Banerjee et al. (2021) found that firms with higher leverage tend to have longer CCC, other studies found that firms with higher leverage, more growth opportunities, higher investment in fixed assets and return on assets tend to have shorter CCC (Baños-Caballero et al., 2010; Cho et al., 2019). Shorter CCC of firms with high level of investment in fixed assets supports the argument that investment in fixed assets compete with investment in working capital (Banerjee et al., 2021; Baños-Caballero et al., 2010; Fazzari and Petersen, 1993). The possible explanation of the negative relation between CCC and return on assets could be the higher bargaining power of firms with higher profitability (Baños-Caballero et al., 2010; Chiou et al., 2006; Shin and Soenen, 1998). While according to Kling et al. (2014), profitability increases CCC, and it might be that profitable firms don't need to improve their working capital management. In the same vein, cash holdings and trade credit increase CCC, while the banks financing doesn't have any effect on CCC. In general, more access to bank lending increases firm liquidity, which means that firms can keep a longer CCC. The author didn't find a significant effect because even if there is more credit from banks, firms would prefer to increase their cash by shortening their CCC to avoid being monitored by banks (Kling et al., 2014). Firms with limited access to bank loans and/ or financing from capital markets use their CCC as an additional financial source because information asymmetry between partners of the supply chain is lower comparing with banks or capital markets (Bordo et al., 2016; Dbouk et al., 2020; Ding et al., 2013; Pfohl and Gomm, 2009). Several studies found that the optimal value of investing in CCC for financially constrained firms is less than non-constrained firms, while the profit maximizing level of working capital for firms facing financially constrained partners in the supply chain is higher (Banerjee et al., 2021; Baños-Caballero et al., 2014; Ben-Nasr, 2016; Kieschnick et al., 2013; Wetzel and Hofmann, 2019). These findings suggest that firms facing financial constraints tend to extend credit from their suppliers, decrease credit to customers, and/or decrease their inventories, while firms with more access to finance provide their customers with better credit terms (Banerjee et al., 2021; Chen and Kieschnick, 2018; Hill et al., 2010; Molina and Preve, 2012; Molina and Preve, 2009; Zeidan and Shapir, 2017). When dividing the financial constraints of the company into two components; growth-oriented constrain and contractual-obligation oriented constrain, Banerjee et al. (2021) found that firms with growth-oriented constrained have shorter CCC. In case of growth-oriented constrained firms, their constraints arise from information asymmetries between internal management and shareholders regarding firm investment opportunities, but there is no fear of losing control.

Thus, it is likely that growth firms receive better treatment from their customers and suppliers (Banerjee et al., 2021; Baños-Caballero et al., 2010; Cuñat, 2007). On the other hand, firms with contractual-obligation oriented constrained have longer CCC resulting mainly from longer inventory periods. Firms facing contractual-obligation oriented constraints have no access to market debt and are not able to manage their working capital in a way to shorten their CCC to increase liquidity to compensate this constraint (Banerjee et al., 2021). Several studies found a significant effect of firm's executives on CCC levels. Kroes et al. (2021) found that the presence of Chief Supply Chain Officer (CSCO) in the firms is associated with shorter CCC, days inventory outstanding, days sales outstanding, and slightly shorter days payable outstanding, especially in times of high market instability. The insignificant effect of CSCO on days payable outstanding supported the implications that CSCOs avoid using payable as lever to improve liquidity but focus on the long-term relationship with suppliers (Hofmann and Kotzab 2010; Kroes et al., 2021). Thus, in some cases, firms are more interested in building collaborative relationship with partners than following exploitive behaviors to shorten their CCC on the benefits of supply chain members (Cho et al., 2019). In the same vein, Dass et al. (2014) show that CCC is shorter in firms with directors from related industries (DRIs) in the upstream and downstream supply chain in the board of directors. This could be a result of a more efficient management of inventories. Moreover, customers and suppliers are more willing to provide better trade credit term to firms with DIRs because these firms have less agency problems, better monitoring, more knowledge and usually bargaining for better credit terms in times of industry shocks (Dass et al., 2014). In another study, Adhikari et al. (2021) found that firms led by older executives (CEOs and CFOs) tend to have longer CCC (i.e., they paying their suppliers sooner and keep their inventory for longer periods), supporting the argument of increasing risk aversion with age. These findings are more apparent for younger firms who may have lower bargaining power (Adhikari et al., 2021). Regarding the effect of firm operations on the CCC, Özbayrak and Akgün (2006) found that processing lead time, dispatching rule, buffer size, pull and push control strategies affect the CCC. Shortest processing time and pull system is quicker in converting raw materials into finished goods comparing to push system, which increase the inventory turnover and shorten both, inventory conversion cycle and overall CCC (Özbayrak and Akgün, 2006). By adopting a Just-In-Time (JIT) system and following a 3D technology, firms could have shorter lead time, decrease cost ratio to sales. In addition, JIT enables firms to change the cost structure by decreasing the level of cost paid during one period when vendors deliver the materials and extend it to several periods, these strategies decrease the cash flow risk of the firm by decreasing its CCC (Tsai, 2017). While increasing the geographic dispersion of firms' sales network increases firms' inventory days outstanding and cash conversion cycle since international trade transactions may make the shipment and collecting payment periods longer (Cho et al., 2019; Hummels and Schaur, 2013; Lorentz et al., 2012; Maes et al., 2019). However, larger firms and firms that follow a make-to-stock strategy are more able to mitigate the negative effect of geographic dispersion on inventory days and CCC (Lorentz et al., 2012). Lo et al. (2009) show that manufacturing firms that implement ISO 9000 improve their operations efficiency and decrease DIO, DSO, and operating cycle (DIO+DSO). Decreasing the operating cycle means increasing supply chain efficiency by a faster cash and material flow with supply chain partners. Shorten DSO could mean that ISO 9000 certified firms offer better service and product quality. Mavropulo et al. (2021) found that firms that use value-based KPIs in their management control system mitigate the firm's inefficient investment in working capital, and the speed of adjustment to the optimal level is higher when there is excessive level of working capital than a deficit.

#### *4.1.2. Determinants of the CCC at the supply chain level*

While efficient supply chain management practices could result in a shorter CCC and inventory days outstanding, increasing communication and sharing information between partners in the supply chain play a critical role in efficient management of the CCC (Christopher and Gattorna, 2005; Li et al., 2005). Wetzel and Hofmann (2019), found that firm performance is affected by the efficiency of its partners in the supply chain in managing inventories, while increasing the firm liquidity and decreasing its inventory cost on the expense of its suppliers adversely affect the firm performance. Dai et al. (2021) show that suppliers who provide more credit to zombie customers are prone to exit the market as a result of business failure contagion in the supply chain. The results also show that increasing the proportion of zombie firms increase the suppliers DSO and in the same time, suppliers pass this credit burden further to the upstream level in the supply chain by increasing DPO, but the overall outcome is an increase in the CCC of the suppliers. Previous studies found that the further the firm is in the upstream of its supply chain, the longer its CCC, because companies in the downstream try to postpone investment in the product to the last minute or follow just-in-time strategy to reduce inventory cost (Anupindi and Jiang, 2008; Lorentz et al., 2016; Wetzel and Hofmann, 2019). Using a modeling approach, Tangsueeva and Prabhu (2013) show that increasing the bullwhip effect in the supply chain and increasing the lead time of order placement and arrival of goods resulted in increasing the cash flow bullwhip effect (i.e., CCC), while increasing the demand observation period decreases the firm's CCC. These effects become more severe for the upstream firms in the supply chain (Tangsueeva and Prabhu, 2014). Wuttke et al. (2013) show that focal firm collaborative approach to optimize CCC and its components across supply chain is more likely to propagate further upstream in the supply chain. In a study using a modeling methodology, Peng and Zhou (2019) found that companies with lower discount rates should provide their partners in the supply chain with faster cash turnover (i.e., fast cash conversion). On the other hand, companies with higher discount rates should transfer all profit to partners with lower discount rates to maximize the overall profit of the supply chain (Peng and Zhou, 2019). In the same vein, Wu et al. (2019) show that delaying payments to suppliers benefit both suppliers and retailers when suppliers have a lower cost of capital compared to retailers, while reverse factoring and early payment is more beneficial when retailers have a lower cost of capital. When the deposit rate of the buyer exceeds the interest rate that the supplier charges to the buyer, or when the payment intervals for the supplier increases, the buyer could decrease its CCC by decreasing DIO and increasing DPO. In these cases, the buyer can benefit from postponing payments to suppliers and increase the cash investment opportunities (Ries et al., 2017). Several studies provide different practices that firms and their partners in the supply chain could follow to improve the management of their CCC. For example, using Asset-Backed Securities policy to finance accounts receivables, the suppliers could decrease both cash flow risk and CCC, and in the same time this policy has no negative effect on customers' cash outflows (Tsai, 2008). Rajesh et al. (2011) indicate that firms which use a third-party logistics (3PL) provider services could reduce the length of their CCC and improve their working capital management. Recently, supply chain finance and its technology became an important tool to improve both, firms' CCC management and financial performance. Moreover, the benefit of implanting supply chain finance on the efficient management of CCC, CCC components, and firms' performance extends to all supply chain partners (Chakuu et al., 2019; Wang et al., 2020; Xu et al., 2018). Supply chain finance practices decrease information asymmetries between partners in the supply chain by improving the flow of information which is important for an efficient management of firms CCC (Jia, et al., 2020). Jia, et al. (2020) provide an example of Volvo manufactured who aimed to optimize the CCC in its supply chain by implementing and managing a supply chain finance programme and increasing the information processing capabilities to match the information processing requirements.

Wu et al. (2019) show that reverse factoring is an important practice of supply chain finance that helps firms in the supply chain to shorten their CCC collaboratively without burden their partners. In a case study conducted with representatives from a blockchain technology provider, supplier, core company, and bank, Wang et al. (2021) found that the blockchain technology improve integration between business and finance, and the interchange of information, which ensure an efficient management of all parties' working capital. For example, the blockchain solutions minimized the time required for the core company to confirm account payable invoices for its supplier and apply for bank lending which improved suppliers' liquidity, reduced cash flow volatility, improved capital cost and value, and shortened the cash conversion cycle (Wang et al., 2021).

#### *4.1.3. Determinants of the CCC at the country level*

According to Mättö and Niskanen (2021), firms operating in countries with a higher legal score<sup>1</sup>, where there is better investor protection and/ or in market-based capital system, tend to have shorter CCC. The interpretation for this finding is that, in these countries, the availability of other channels of funds (banks or capital markets) decreases the firms' role as a credit provider to its partners, thus shorten the overall firms' CCC (Mättö and Niskanen, 2021). Analyzing 28 manufacturing industries across 39 countries, Grobéty (2018) found that industries with higher CCC have higher liquidity needs, and these industries tend to grow faster in countries with a higher domestic government debt. Cultural differences may also affect CCC and its components (Farris and Hutchinson, 2002; Lorentz et al., 2012). For instance, Pirttilä et al. (2020) highlight the differences between Russian and West automotive industries, where in Russia the use of negotiation power and governance structure is prevalent between supply chain partners. Moreover, following aggressive strategy in managing CCC (decrease DIO and DSO while increase DPO) is not a profitable strategy for Russian firms, in the contrary, profitable firms have shorter days of payables (Pirttilä et al., 2020). Based on previous studies, we observed a contradicting effect of EPU on CCC, depending on whether the firm plays the role of credit provider or it uses the CCC as a source of financing (Banerjee et al., 2021; Brandenburg, 2016; Dbouk et al., 2020). Moreover, economic uncertainty affects inventory at different levels of production (i.e., raw materials, work in progress, and finished goods) in different ways. This results in a different effect of EPO on CCC between industries in which, for example, work in process inventory is more critical for manufacturers whereas finished goods inventory is more critical for retailers (Dbouk et al., 2020; Kroes et al., 2018; Özbayrak and Akgün, 2006). Recently, Goodell et al. (2021) investigate another aspect of EPU in which they investigate the effect of volatility in EPU on the level of CCC and the change in CCC. They found that increasing the volatility of EPU is associated with a shorter CCC and a negative change in CCC as firms aim to increase cash holdings to protect themselves against volatility of EPU by shortening CCC.

#### **4.2. The effects of CCC on firm's performance and value**

The effect of CCC on firm performance and value is contradicting among studies, and in this section, we divided the literature into three schools. The first school address the negative effect of CCC, the second school shows the positive effect of CCC, while the third school deals with literature that found out a concave effect of CCC on firm performance or value.

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<sup>1</sup> The legal score used by Mättö and Niskanen (2021) consists of three factors at the country level (1) Efficiency of the Judicial System, (2) Rule of Law, and (3) Corruption. The higher the score, the safer is the country legal system for the rights of the investors.

#### *4.2.1. The negative effect of CCC on firm's performance and value*

Several studies found that firms with shorter CCC are more profitable than ones with longer CCC (de Almeida and Junior, 2014; Mun and Jang, 2015; Nobanee et al., 2011; Wang, 2019; Yazdanfar and Öhman, 2014; Zeidan and Shapir, 2017). Measuring the firm performance using firm's expected stock returns, Wang (2019) found a negative relationship between CCC and firms' expected stock returns, and documented that increases in the CCC rises the crash risk of future stock price (Cheng et al., 2020). In the same vein, Zeidan and Shapir (2017) study the case of Brazilian firm following a three-year program to decrease its CCC. They found that decreasing the CCC had a positive effect on firm's stock prices and profitability in case the reduction in the CCC does not result in losing sales. Banerjee et al. (2021) indicate that shorter CCC, days inventory outstanding, days receivables outstanding, and longer days payable outstanding lead to higher firm value. In addition, they found that the positive effect of growth oriented financial constraints on firm value is stronger with shorter CCC, DIO, DSO, and longer DPO, while the negative effect of contractual financial constraints on firm value is stronger for firms with longer CCC, DIO, DSO, and shorter DPO (Banerjee et al., 2021). Another modeling study show that although the introduction of new products drops firms' idle fraction of non-productive time (IFNPT) to zero, increases in inventory and the lengthening of the CCC may decrease firms' profit (Menezes et al., 2021). Castellares and Salas (2019) found that when countries are exposed to recession, financial crisis, or a combination of the two, their imports drop drastically especially for industries with longer CCC because they are more financially dependent. In another study, Claessens et al. (2012) found based on a sample of firms from 42 countries, that sectors with longer CCC encounter a sharply decrease in sales during the financial crisis. In the same vein, Nguyen and Qian (2014) show that the sales and capacity of firms with higher need for external finance (longer CCC) is negatively affected during financial crisis especially for smaller firms. According to previous literature, the justification for finding a negative effect of CCC on firm performance and value is that firms with longer CCC face high liquidity needs and hold more cash. Thus, these firms bear higher cost of financing, in addition to higher opportunity cost of investing their capital in their operating cycle rather than in value-enhancing projects (Baños-Caballero et al., 2014; Brandenburg, 2016; Bigelli and Sánchez-Vidal, 2012; Deloof, 2003; Kieschnick et al., 2013; Kling et al., 2014; Mavropulo et al., 2021). In addition, a shorter CCC guarantees more liquidity to the firm and leads to a higher value of net cash flows, and thus, it is associated with better firm performance (Farris and Hutchison, 2002; Tsai, 2011; Zhang et al., 2019).

#### *4.2.2. The positive effect of CCC on firm's performance and value*

Lin and Lin (2021) found that CCC is a good predictor of positive firm's stock returns. In a study conducted with 19 manufacturing industries in the US, Kovach et al. (2015) show a positive relationship between firm's CCC and ROA. However, a longer CCC strengthens the negative effect of industry instability on firms' ROA, and hence, in unstable environments firms should manage their CCC aggressively (Kovach et al., 2015). Hendricks et al. (2009) found that stock market reacts negatively (i.e., drop in abnormal stock returns) to disruptions in firms' supply chain but this negative effect is mitigated if firms have more operational slack in its supply chain measured by the CCC. Although Zhang et al. (2019) found that providing liquidity from focal firm to supply chain partners by lengthening CCC not always resulted in improving the focal firm market value and inventory management efficiency, but they found that it decreases firm's bankruptcy risk. Authors who found a positive effect of CCC on firm performance support their findings using different theoretical explanations. A longer CCC indicates that firms maintain higher buffers in the supply chain to manage sales surprises (i.e., unexpected demand) without deteriorating product quality and the reliability of the firms in delivering products.

Moreover, a longer CCC may increase customers' patience in receiving delivery and suppliers' acceptance of delayed payments (Manikas and Patel, 2016). In addition, firms usually shorten their CCC at the expense of their supply chain partners, which negatively affect the overall supply chain performance and thus, firm performance (at least in the long term) (Hofmann and Kotzab, 2010; Laik and Mirchandani, 2021; Tsai, 2008). For example, if a powerful firm takes a longer time to pay its suppliers, the suppliers could respond to this practice by increasing the selling price and/or reducing the quality of products and services (Hofmann and Zumsteg, 2015). While paying suppliers faster (i.e., shortening DPO) may decrease firms' cost by obtaining price discounts for early payments and maintain long-term relationship with suppliers (Wilner, 2000; Wetzel and Hofmann, 2019).

#### *4.2.3. The non-linear effect of CCC on firm's performance and value*

The third school of thought claims for the existence of an optimal level of CCC, in which a low level of CCC could result in losing sales, while a high level of CCC could lead to higher costs and revenue losses (Wetzel and Hofmann, 2019; Zeidan and Shapir, 2017). This new research stream started with the work of Baños-Caballero et al. (2012), who analyzed the non-linear relationship between CCC and firms' profitability. They found a concave relationship between CCC and profitability, which means that there is an optimal level of CCC (Baños-Caballero et al., 2012). In the same vein, Wetzel and Hofmann (2019) found an inverted U-shaped relationship between CCC and firm performance. Firms may deviate from their optimal CCC level due to shocks, institutional or technological constraints, and based on the trade-off between the cost of operating with the suboptimal level and the cost of adjustment to the optimal level, they may not converge instantaneously to the optimal level (Mavropulo et al., 2021).

#### **4.3. The effects of CCC components on firm's performance and value**

Several papers in our sample focus on the effect of inventory on firm performance and value. Inventory is an important component of CCC and it represents an operational slack for the firm (especially in times of instability). Interestingly, it may affect performance in different ways. While Kroes et al. (2018) finds that firms with shorter days inventory outstanding (or firm shortening its DIO) have higher unexplained stock returns, they also show that a higher market instability could mitigate this relationship. Saranga (2009) shows that firms with higher inventory have higher input mix efficiency and technical efficiency, in addition to a super efficiency in managing delayed deliveries and unexpected demand. Wiengarten et al. (2017) finds that a low level of operational slack (i.e., shorter DIO) results in increasing violations in the safety of operational workers, and this effect is amplified when the industry market is categorized by complexity, dynamism, or munificence, while the effect is mitigated when firm has more financial slack. Thus, the optimal level of slack that increases the firm's outcomes is not the level that protect the workforce. On the contrary, reducing operational slack puts more pressures on workers (Wiengarten et al., 2017). Wood et al. (2017), in a sample of 135 toy recall announcements from 27 firms, found that firms with greater inventory slack (i.e., longer DIO) use this strategy to reduce or even mitigate the negative effect of toy recall announcements on their abnormal stock returns. On the contrary, other studies found a positive effect of a reduction in days of inventory on firm performance. This could be a result of a lower cost of holding inventories, liquidity improvements, and increases in the cash available to be invested in sales-enhancing activities (Capkun et al., 2009; Chen et al., 2005; Koumanakos, 2008; Kroes and Manikas, 2014; Swamidass, 2007). Kroes and Manikas (2014) found that the CCC has no effect on firm performance, while the metric Operating Cash Cycle (OCC) which is calculated as days inventory outstanding plus days sales outstanding has a negative effect on firm performance. A reduction in days sales outstanding (DSO) could result in higher liquidity, increasing the money available to investment in activities that improve firms' sales and

profitability, and decreasing the risk of receivables collection (Bauer, 2007; Kroes and Manikas, 2014; Tsai, 2011). On the other hand, Kroes and Manikas (2014) didn't find a significant relationship between days payable outstanding (DPO) and firm's performance, which could be an indication of the existence of a DPO optimal level (Bauer, 2007). Although Mramor and Valentincic (2003) indicate that CCC is not a significant predictor of very small private companies (VSPCs) future liquidity, but they find that the only predictor of companies' cash shortage is the DPO. The authors interpret this finding as VSPCs aim to delay payments to suppliers before the occurrence of cash shortage.

## 5. CONCLUSION

This paper presents a systematic review of the literature exploring the cash conversion cycle. We collected a sample of relevant papers from two databases: Science Direct and Scopus. The final sample includes 61 papers that met the inclusion and exclusion criteria. First, we provide a descriptive analysis of the papers according to year of publication, journal of publication, methodology followed in the paper, distribution of papers by industry, and country. Then, we analyze the studies in our sample to answer our research questions regarding the determinants of the CCC, the effect of CCC on firm's performance and value, and to address the gap in the literature and future direction of the research on CCC. The content analysis reveals that the CCC is determined by factors at firm level, supply chain level, and at country level. Likewise, we find that the effects of CCC and its components on firms' performance and value are contradicting among studies. We consider that this contradicting evidence occurs due to different factors affecting this relationship, such as the type of industry, instability of industry, or economic conditions. Based on the literature review we discovered several gaps that could be explored in future research. For example, we found that the majority of studies focus on the manufacturing-industrial sector. Other sectors such as services, finance, agriculture, or transportation have received less coverage, and therefore, we consider that future research may explore how the particularities of the dynamics of these sectors may change the determinants and performance-related consequences of the cash conversion cycle. In the same matter, we showed that 64% of our sample uses a statistical analysis methodology. Future research can use other methodologies such as, case studies or lab experiments, to investigate the effect of different qualitative factors that may influence the way in which firms select their "optimal" cash conversion cycle. We also noticed that the majority of the papers focus on samples from United States, United Kingdom, China, India and other European countries. Hence, future research could test whether previous findings are generalizable to firms in countries with other idiosyncrasies (e.g., countries in Latin America or Africa). Future research could also investigate other factors that potentially affect the CCC levels and factors that mediate or moderate the relationship between CCC and firm performance and value. This paper also has its limitations. We choose for our analysis two keywords related to the cash conversion cycle. Expanding keywords to include the components of the cash conversion cycle could result in more comprehensive review of the topic. Furthermore, more databases can be included in the analysis. Finally, we limit our analysis to papers classified either 3, 4, or 4\* according to Association of Business Schools (ABS) journal guide, this may result in excluding papers that fit with our topic of interest but are classified in the lower tiers of the ABS journal guide.

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# THE IMPACT OF PUBLIC INVESTMENTS ON THE ECONOMIC GROWTH OF ALBANIA

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## ABSTRACT

*This study aims to assess the effect that public investments has on economic growth in the case of Albania. The main variables that are considered are fixed capital formation or investment which is defined as the purchase and production of assets as well as the final expenditures of government consumption which in a way represent the size of government. To verify the impact that the variables have on economic growth, we have chosen the simple regression analysis. The period for which data were collected is the period 1991 – 2020. The dependent variable is economic growth, as the study aims to test the effect that a number of independent variables (mainly government spending) have on this variable. The independent variables in this study are: Gross Fixed Capital Formation (GFCF); General Government Final Consumption (GGFC); The results confirm a significant relationship between public investment and economic growth. Fixed capital formation has a positive relationship with economic growth. Regarding the relationship between the final expenditures of government consumption, the study confirms an inverse relationship.*

**Keywords:** *economic growth, public investment, fixed capital, government consumption*

## 1. INTRODUCTION

Public investment is defined as public spending that increases the stock of physical capital that includes fixed assets such as: property (excluding land), buildings and other structures (e.g. roads, airports, hospitals, schools, telecommunications facilities, government buildings and institutions, bridges), etc.), machinery, transport equipment and intangible assets such as intellectual property. So public investment is the investment that leads to the growth of the aforementioned items. (OECD, 2016). Public investment can be thought of as a policy tool in the hands of a government, which can be used to change or determine the course that the economy will follow. Used properly and with a high level of efficiency, public investments have all the potential to enable sustainable economic growth by providing public services and the necessary infrastructure and thus contributing to increasing the overall well-being which is also the objective. final of each government. Governments use public investment to respond to a range of challenges over time, from tackling climate change, which is a global issue, to problems within the country, such as periods of economic downturn, changing demographic trends, and urbanization. fast, or adapting to new technologies. As the European Investment Bank has pointed out, “properly functioning infrastructure networks are the backbone of thriving economies” (European Investment Bank, 2010). Public investment is of indisputable importance for economic and social prosperity, because it contributes to the stock of national capital, allocating resources to the necessary basic infrastructure, education, research and development and consequently leading to higher productivity and standards. living. Public investment in any field that is carried out creates a public good, which is non-exclusive and not rival in consumption.

Therefore, public investment is justified both in economic terms and in terms of political ideology. In economics, public investment is important because it enables the delivery of public goods that are considered vital and may not be of interest to the private sector. In politics, public investment is seen as necessary to achieve various political objectives, such as: national security, protection of rights, law enforcement, national economic development, full employment, protection of the environment, etc. Public investment, among other things, can produce a number of positive externalities, such as innovation, productivity growth, and employment growth. The simplest and classic case, schools and hospitals are not simply investments in buildings, but the infrastructure needed to enable the development of human capital, which in the long run will produce prosperity and further economic development.

**Research question:** Do government spending (spending on government consumption and fixed capital formation) affect economic growth?

**Hypothesis:**

- **H<sub>0</sub>:** Government expenditures (expenditures on government consumption and fixed capital formation) have no impact on economic growth.
- **H<sub>a</sub>:** Government expenditures (expenditures on government consumption and fixed capital formation) have an impact on economic growth.

## 2. LITERATURE REVIEW

Public spending can have a positive or negative effect on economic growth. From a Keynesian point of view, public investment is a potential instrument that the government can use to increase output, especially in times of economic downturn. The increase in public spending will cause an increase in aggregate demand. (Blinder, n.d.). Whereas, from a neo-classical point of view, public investments are, in a way, harmful to the economy, as they shift resources from the private to the public sector. This shift has negative consequences on economic growth and creates a "crowding out" effect, which inevitably delays economic growth. Opposite the Keynesian point of view, Adolph Wagner (1835-1917), known as "Wagner's Law", is often placed in literature. Both views, however, agree that there is a clear relationship between economic growth and government spending. But, the two economists are divided on the point where the direction of the connection of these variables is determined. Keynes argues that the direction of the link stems from government spending toward economic growth, while Wagner argues the opposite. An empirical study by Aschauer (1989) showed that investment in roads, highways and public works produces a significant level of economic growth. Aschauer concluded that the effect of public investment on economic growth is likely to be as positive as the "crowding in" or "crowding out" effects that public investment could have on private ones. If public and private capital complement each other, an increase in public investment can further boost private investment. Studies show a crowding in effect that dominates the opposite crowding out effect. Abiad (2015) concludes that public investment increases output and attracts private investment. This becomes even more evident in countries where the efficiency of public investment is high. In addition to the effect on production, Ganelli and Tervala (2016) prove that public investment also has an impact on consumption, causing the latter to increase. Fournier (2016), in his study, reaches the following conclusions: increasing public investment generates an increase in economic growth; this supplement is significant especially for public investments in health and research and development expenditures; and if the level of public investment is too high, economic growth will slow due to declining returns. Abiad, Fucrieri and Topalova (2016) bring new evidence on the macroeconomic effect of public investment in advanced economies. According to them, the increase in public investment results in product growth in the short and long term.

At the same time, their study findings were that public investment approaches private investment (crowding-in effect) and reduces unemployment. Jafar (2015) examines the relationship between GDP and public investment over a period of several decades. The results confirm a positive link between GDP and public investment. But, this study concludes that it is GDP growth that causes a rapid increase in public investment, through the Granger causal test. Ahuja and Pandit (2020) through a research work with data of 59 states for a period of time from 1990 to 2019, sought to examine the relationship between public spending and economic growth. Their findings confirm a causal link between public spending and GDP growth. The results of the study are in line with the Keynesian theoretical framework that emphasizes the importance of public investment as a way to stimulate economic growth. However, the positive effects of public investment, as evidenced by much of the literature, are not confirmed in every circumstance. Warner (2014) finds a non-significant long-term link between infrastructure projects and public capital growth in low-income countries. He points out that many case studies can be useful in highlighting problems with many projects undertaken by governments. Bayraktar (2019), undertakes to explain why public investment in certain countries may not produce the expected economic growth. The reason for this is precisely the inefficiency of public investment in low-income countries.

### **3. DATA, METHODOLOGY AND EMPIRICAL APPROACH**

The data used in this study are secondary data. They have been obtained from a number of official and reliable sources, mainly from: the Ministry of Finance and Economy and the World Bank. The period for which data were collected is the period 1991 - 2020. In this paper the dependent variable is economic growth, as the study aims to test the effect that a number of independent variables (mainly government spending) have on this variable. The independent variables in this study are: Gross Fixed Capital Formation (GFCF); General Government Final Consumption (GGFC);

#### **3.1. Methodology**

The simple linear regression model was used for data processing. Regression analysis produces a regression equation in which the relationship of the independent variables to the dependent variable is reflected. The relationship between the variables is expressed by the beta coefficient. The data are subjected to two simple linear regressions to study the relationship between economic growth and the two components of public investment: fixed capital and government consumption. Regression analysis shows no causal relationship. Through it one can simply identify whether there is a relationship and whether this relationship between the variables is straight or oblique. However, conducting a regression analysis will be sufficient to determine the relationship between economic growth, capital formation, and spending on government consumption. Simple linear regression: where,  $y$  represents the dependent variable, in this case economic growth;  $\beta_0$  is a constant that hypothetically indicates what the value of the dependent variable would be if all the independent variables were equal to zero;  $\beta_1$  is the coefficient that indicates the relationship that exists between the dependent variable and the independent variable, it indicates how much the dependent variable is expected to change when the independent variable changes by one unit;  $x_1$  is the independent variable;  $\epsilon$  represents the residual variable, or errors that may occur, that cause values to deviate from the forecast.

#### **3.2. Empirical analysis**

The first regression studies the relationship between fixed capital formation, otherwise known as "investment" (GFCF), and economic growth. The dependent variable in this equation is economic growth and the independent variable is investment.

After data processing and regression analysis, the result is the linear equation produced, as follows:

$$\text{Economic growth} = 0.1026 * GFCF$$

This means that if the GFCF increases by one unit, the impact on economic growth is an increase of 0.1026 times. The connection, as seen, is positive, just as expected from the literature. In the summary prepared by the data processing program, one of the most important statistics is  $P > |t|$ . The value of this statistic for this regression equation is 0.008, which means that there is a 0.8% probability that the fixed capital formation variable (GFCF) will not have an impact on the dependent variable, economic growth. So, only 0.8% probability that the null hypothesis is accepted. Also, p value of 0.008, significantly less than 0.05 means that the bond generated by the simple regression model is statistically significant. There is less than 5% probability that the first hypothesis (null hypothesis) is correct. Also, another important indicator for the model set up as above, is R-squared. This statistical measure represents the part of the variance of the dependent variable that is explained by the independent variable. In this case, R-squared has a value of 0.162. This means that only 16.2% of the variability of the dependent variable, ie economic growth, is explained by the change of the independent variable, the formation of fixed capital. The part of the volatility part of economic growth that is explained by investment is relatively small, but may come as a result of the type of data. (few observations) In conclusion, it can be said that the first simple regression equation that studies the relationship between economic growth and fixed capital formation, or investment (GFCF), testifies to a positive, equitable relationship between economic growth and investment (GFCF). This relationship is significant at the 5% level, but only 16% of the economic growth variability is explained by the increase in the investment level. Based on this analysis it can be said that the null hypothesis is rejected and the alternative hypothesis is accepted. Thus, it cannot be said that there is no relationship between economic growth and the level of public spending on infrastructure and public works. The second regression studies the relationship between government consumption expenditure (GGFC) and economic growth. After data processing and regression analysis, the result is the linear equation as follows:

$$\text{Economic growth} = - 1.507 * GGFC$$

From the equation it is noticed that economic growth and government consumption expenditure have a negative correlation, so with an increase of one unit of government consumption expenditure, economic growth will decrease by 1,507 units. The probability value of the simple regression model is 0.000, i.e. less than 0.005, which means that the correlation is significant at the 5% level. This means that there is no possibility that the basic hypothesis is true, so the link between economic growth and government spending exists and is negative. Meanwhile, the value of the other important statistical indicator R - squared, is 0.386. This means that 38.6% of the variance of economic growth as a dependent variable is attributed to expenditures on final government consumption, as an independent variable. This is a significantly and significantly higher percentage than the percentage of the previous simple regression equation that studies the relationship between economic growth and investment. To summarize, based on the result generated and reflected in the simple regression equation, where the dependent variable is economic growth and the independent one is government consumption, it can be said that the relationship between them is negative. So as one variable increases, the other will decrease. If the Albanian government decides to increase spending on defense, the military, social protection, administration salaries, economic growth is likely to decline. This link is significant at the 5% level.

Also, 38.6% of economic growth variability can be explained by the government consumption expenditure variable. In this case it can be said that the basic hypothesis is rejected, in which it is claimed that there is no link between economic growth and government spending. According to the findings of this study, the relationship between the above variables exists and is negative, unlike what is observed in the literature.

#### **4. CONCLUSIONS AND RECOMMENDATIONS**

This study aimed to assess the relationship that exists between the level of public spending and economic growth in the case of Albania. The link between economic growth and fixed capital formation, which is an indicator of investment in public works and infrastructure, is a positive and important link. This means that higher levels of public spending on infrastructure projects are likely to translate into higher economic growth and development. Expenditures on government consumption, including expenditures on defense, education, health, social protection, have a statistically significant but negative correlation with economic growth. This result, in fact, is different from what was expected based on theory and empirical literature. Theoretically, it was expected that the expenditures that a state incurs at least for education and health, would have a positive impact on economic growth. However, such a negative result in the case of Albania may indicate more about the inefficiency of these expenditures. According to reports, in Albania, corruption and lack of transparency in public procurement are very present problems, which undermine the quality and efficiency of spending. This may be one of the reasons why the increase in the level of government consumption expenditures is likely to result in a decline in GDP growth. Regarding the direction of the relationship between public spending and economic growth, this study finds that the direction of this relationship is from public spending to economic growth. The results of the simple regression model, where the dependent variable is government consumption expenditure and the independent variable economic growth, are not significant, in contrast to the simple regression results where the variables are the inverse of the latter. Thus, in Albania a higher level of economic growth is not associated with higher government consumption expenditures. Based on these conclusions, it is suggested to review the policies of the Albanian government regarding public spending, especially on government spending. Since this variable is the only one that has a negative relationship with economic growth, it is important to pay due attention to improving efficiency. Therefore, two alternatives could be to keep government spending at a low level and / or improve public spending efficiency.

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## ASSESSMENT OF THE PERFORMANCE OF THE MANUFACTURING INDUSTRY IN SERBIA BASED ON THE CODAS METHOD

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### ABSTRACT

*Over the recent years, multi-criteria decision-making has been increasingly used to measure the performance (i.e. efficiency) of companies across different sectors. With this in mind, the paper analyses the efficiency of Serbian manufacturing industry using the CODAS method. Adequate measures are proposed to improve the performance of the manufacturing sector in Serbia in the future. The obtained results of empirical research, using the CODAS method, show that, in the observed period, the efficiency of Serbian manufacturing industry was improving year on year. The highest efficiency was achieved in 2019. This was positively influenced by numerous macro and micro factors, such as the rising number of international companies setting up in Serbia that use new technologies and business methods (for example, the Kaizen concept) as well as the digitalisation of business processes.*

**Keywords:** *CODAS method, determinants, manufacturing industry in Serbia, performance/efficiency*

### 1. INTRODUCTION

Manufacturing performance measurement using multi-criteria decision-making is a very current, complex and major subject of scholarly discussion (Pamučar, 2018; Hassanpour, 2019; Karagoz, 2020). With this in mind, the paper analyses the efficiency of the manufacturing industry in Serbia using the CODAS method. The authors seek to address this complex issue with the aim of proposing adequate measures for enhancing the efficiency of the manufacturing sector in Serbia in the future, thereby contributing to the existing scientific and professional literature. Recently, there has been a growing scholarly interest in assessing the performance of companies from different economic sectors using the CODAS method. However, in contrast to the AHP, TOPSIS, DEMATEL and other methods, very few works focus on performance measurement in the manufacturing sector using the CODAS method (Saaty, 2008; Velasquez, 2013; Cagri, 2013; Ersoy, 2017; Gaur, 2020; Lukic, 2019, 2020a, b, c; Sarsour, 2020; Urbonavičiūtė, 2019), especially in Serbia. To the authors' knowledge, no publications are available in the Serbian literature that address the subject of manufacturing efficiency using the CODAS method. Thus, drawing on the international literature, this study aims to evaluate the performance of the manufacturing sector in Serbia using the CODAS method. A literature review was conducted that provides a theoretical, methodological and empirical framework for analysing the manufacturing sector efficiency in Serbia using the CODAS method. The purpose is to design adequate measures for future efficiency improvements. The main research hypothesis is that continuous monitoring of the efficiency of companies in the manufacturing sector is necessary to enhance the sector's efficiency as it allows the identification of measures that should be taken to achieve this objective. The method used in this paper is called the CODAS method. In addition, the authors use statistical analysis and the AHP method (Saaty, 2008).

The necessary empirical data were collected from the Serbian Business Registers Agency. They are produced in accordance with relevant international standards and, as such, are internationally comparable.

## 2. CODAS METHOD

The Combinative Distance-Based Assessment (CODAS) method is a newly developed method for handling multi-attribute decision making problems (Badi, 2018; Panchal, 2017; Ghorabae, 2016, 2017; Mathew, 2018; Seker, 2020). It is a distance-based approach that uses Euclidean and Taxicab measures to choose the best alternative from a set of available options. The main principle of the CODAS method is that the best alternative should have the greatest distance from the negative-ideal solution. In the case when the Euclidean distances of two alternatives have the same value, Taxicab distances are compared to identify the best choice. The steps of the CODAS method process are as follows:

*Step 1.* Construct the decision-making matrix

Decision makers assess the alternatives on each attribute (criterion).

$$[x_{ij}]_{n \times m} = \begin{bmatrix} \tilde{x}_{11} & \tilde{x}_{12} & \cdots & \tilde{x}_{1m} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{x}_{n1} & \tilde{x}_{n2} & \cdots & \tilde{x}_{nm} \end{bmatrix} \quad (1)$$

where  $x_{ij}$  denotes the performance value of  $i$ -th alternative  $i \in \{1, 2, \dots, n\}$  on  $j$ -th criterion  $j \in \{1, 2, \dots, m\}$ .

*Step 2.* Calculate the normalised decision matrix

Linear normalisation is used as follows:

$$\tilde{n}_{ij} = \begin{cases} \tilde{x}_{ij} / \max_i \tilde{x}_{ij} & \text{if } j \in N_b \\ \min_i \tilde{x}_{ij} / \tilde{x}_{ij} & \text{if } j \in N_c \end{cases} \quad (2)$$

$N_b$  represents sets of benefit criteria (higher value is preferred), and  $N_c$  represents sets of non-benefit (cost) attributes (lower value is preferred).

*Step 3.* Calculate the weighted normalised decision matrix

The weighted normalised decision matrix is determined using the following equation:

$$s_{ij} = w_j \tilde{n}_{ij} \quad (3)$$

where  $w_j \in [0, 1]$  represents the weight factor assigned by the decision maker to different attributes and  $\sum_{j=1}^m w_j = 1$ .

*Step 4.* Identify the negative-ideal solutions

Negative-ideal solutions ( $NI$ ) are obtained by applying the following equation:

$$NI = [n_{tj}]_{1 \times m} \quad (4)$$

$$n_{tj} = \min s_{ij}$$

*Step 5.* Calculate the Euclidean ( $ED$ ) and Taxicab ( $TI$ ) distances of alternatives from the negative-ideal solution.

The Euclidean and Taxicab distances of alternatives from the negative-ideal solution are calculated as follows:

$$ED_i = \sqrt{\sum_{j=1}^m (s_{ij} - n_{tj})^2} \quad (5)$$

$$TI_i = \sum_{j=1}^m |s_{ij} - n_{tj}| \quad (6)$$

*Step 6.* Construct the relative assessment matrix

The relative assessment matrix (*Ra*) is calculated using the following equation:

$$Ra = [p_{il}]_{n \times n}$$

$$p_{il} = (ED_i - ED_l) + (\delta(ED_i - ED_l))x((TI_i - TI_l))$$

where  $l \in \{1, 2, \dots, n\}$  and  $\delta$  is a threshold function that is defined as follows:

$$\delta(x) = \begin{cases} 1 & \text{if } |x| \geq \rho \\ 0 & \text{if } |x| < \rho \end{cases} \quad (7)$$

The value of the threshold parameter  $\rho$  is between 0.01 and 0.05. It can also be set by the decision maker. If the difference between the Euclidean distances of two alternatives is less than the defined threshold value, then they are compared using the Taxicab distance.

*Step 7.* Calculate the assessment score (*AS*) of each alternative

The *AS* of each alternative is calculated as follows:

$$AS_i = \sum_{l=1}^n p_{il} \quad (8)$$

The best alternative is the one with the highest *AS*.

*Step 8.* Rank the alternatives according to the *AS* values

Alternatives are ranked according to the decreasing values of *AS*. The alternative with the highest *AS* value is the best choice among the alternatives.

### 3. ASSESSMENT OF SERBIAN MANUFACTURING INDUSTRY EFFICIENCY USING THE CODAS METHOD

In measuring the efficiency of the manufacturing industry in Serbia using the CODAS method, the following criteria were considered: C1 - number of employees, C2 - assets, C3 - capital, C4 - revenue and C5 - net income. Alternatives were the observed years: A1 - 2013, A2 - 2014, A3 - 2015, A4 - 2016, A5 - 2017, A6 - 2018 and A7 - 2019 (Calculation was performed using CODAS Software-Excel). The obtained results are shown in the tables and figures below. Table 1 shows the initial data for measuring the efficiency of the manufacturing industry in Serbia for the period 2013 - 2019 using the CODAS method.

	Number of employees	Assets	Capital	Revenue	Net income								
2013	313256	2078	1006	2212	128								
2014	299732	2657	1002	2232	117								
2015	304273	2834	1136	2048	142								
2016	320140	2981	1229	2623	168								
2017	340923	3124	1364	2839	230								
2018	367282	3265	1474	2985	170								
2019	381012	3454	1634	3116	196								
<b>Friedman Test*</b>													
Mean Rank	5.00	3.86	2.00	3.14	1.00								
Test Statistics <sup>a</sup>													
Chi-Square	27.314												
df	4												
Asump.Sig.	.000												
a. Friedman Test													
<p><b>Hypothesis Test Summary</b></p> <table border="1"> <thead> <tr> <th>Null Hypothesis</th> <th>Test</th> <th>Sig.</th> <th>Decision</th> </tr> </thead> <tbody> <tr> <td>The distributions of VAR00001, VAR00002, VAR00003, VAR00004 and VAR00005 are the same.</td> <td>Related-Samples Friedman's Two-Way Analysis of Variance by Ranks</td> <td>.000</td> <td>Reject the null hypothesis.</td> </tr> </tbody> </table> <p>Asymptotic significances are displayed. The significance level is .05.</p>						Null Hypothesis	Test	Sig.	Decision	The distributions of VAR00001, VAR00002, VAR00003, VAR00004 and VAR00005 are the same.	Related-Samples Friedman's Two-Way Analysis of Variance by Ranks	.000	Reject the null hypothesis.
Null Hypothesis	Test	Sig.	Decision										
The distributions of VAR00001, VAR00002, VAR00003, VAR00004 and VAR00005 are the same.	Related-Samples Friedman's Two-Way Analysis of Variance by Ranks	.000	Reject the null hypothesis.										
<p>Note: Data are expressed in billions of dinars. The number of employees is expressed in whole numbers. VAR00001 - number of employees. VAR00002 - assets. VAR00003 - capital. VAR00004 - revenue. VAR00005 - net income. * The Friedman test was done using the SPSS software package. It shows that there are significant differences between the observed variables.</p>													

*Table 1: Initial data for measuring the efficiency of the manufacturing industry in Serbia (Source: Serbian Business Registers Agency, Authors' calculation)*

Table 2 shows the descriptive statistics of the initial data used to measure the efficiency of the manufacturing industry in Serbia.

<b>Descriptive Statistics</b>					
	N	Minimum	Maximum	Mean	Std. Deviation
1 Number of employees	7	299732.00	381012.00	332374.0000	31695.54110
2 Assets	7	2078.00	3454.00	2913.2857	453.63925
3 Capital	7	1002.00	1634.00	1263.5714	239.37965
4 Revenue	7	2048.00	3116.00	2579.2857	420.27757
5 Net income	7	117.00	230.00	164.4286	39.62262
Valid N (listwise)	7				

*Table 2: Descriptive statistics (Note: Authors' calculation using the SPSS software package)*

In the observed period (2013 - 2019), the values of the observed variables were above average as of 2016. In other words, in more recent years, the performance of Serbian manufacturing industry improved slightly.

Table 3 shows the correlation matrix of variables used in analysing the efficiency of the manufacturing industry in Serbia.

<b>Correlations</b>		1	2	3	4	5
1 Number of employees	Pearson Correlation	1	.766*	.960**	.941**	.680
	Sig. (2-tailed)		.044	.001	.002	.093
	N	7	7	7	7	7
2 Assets	Pearson Correlation	.766*	1	.899**	.812*	.718
	Sig. (2-tailed)	.044		.006	.027	.069
	N	7	7	7	7	7
3 Capital	Pearson Correlation	.960**	.899**	1	.931**	.773*
	Sig. (2-tailed)	.001	.006		.002	.042
	N	7	7	7	7	7
4 Revenue	Pearson Correlation	.941**	.812*	.931**	1	.782*
	Sig. (2-tailed)	.002	.027	.002		.038
	N	7	7	7	7	7
5 Net income	Pearson Correlation	.680	.718	.773*	.782*	1
	Sig. (2-tailed)	.093	.069	.042	.038	
	N	7	7	7	7	7
*. Correlation is significant at the 0.05 level (2-tailed).						
**. Correlation is significant at the 0.01 level (2-tailed).						

*Table 3: Correlation matrix  
(Note: Authors' calculation using the SPSS software package)*

The results suggest there is a statistically significant correlation between the observed variables, except for net income. This indicates that more efficient management of revenue and expenditure flows, i.e. profit can significantly improve the performance of the manufacturing industry in Serbia. Application of modern cost management concepts and digitalisation of business have a significant role in this. To better understand the results obtained using the CODAS method, the summarised results of ratio analysis are also presented (Table 4, Figure 1). Table 5 contains statistical indicators for the manufacturing industry in Serbia.

	<b>Revenue per employee (in thousands of dinars)</b>	<b>Net income per employee (in thousands of dinars)</b>	<b>Asset turnover ratio</b>	<b>Financial leverage</b>	<b>Return on assets</b>	<b>Return on revenue</b>	<b>Return on invested capital</b>
2013	7061.317	408.6115	1.064485	2.065606	6.16%	5.79%	12.72%
2014	7446.652	390.3487	0.840045	2.651697	4.40%	5.24%	11.68%
2015	6730.798	466.6862	0.722653	2.494718	5.01%	6.93%	12.50%
2016	8193.29	524.7704	0.879906	2.425549	5.64%	6.40%	13.67%
2017	8327.394	674.6391	0.908771	2.290323	7.36%	8.10%	16.86%
2018	8127.27	462.8596	0.914242	2.215061	5.21%	5.70%	11.53%
2019	8178.22	514.4195	0.902142	2.113831	5.67%	6.29%	12.00%
Asset turnover ratio = revenues/assets. Financial leverage = assets/equity. Return on assets = net income/assets. Return on revenue = net income/revenue. Return on invested capital = net income/capital.							

*Table 4: Ratio analysis  
(Note: Authors' calculation)*

Statistics		Revenue per employee	Net income per employee	Asset turnover ratio	Financial leverage	Return on assets	Return on revenue	Return on invested capital
N	Valid	7	7	7	7	7	7	7
	Missing	0	0	0	0	0	0	0
Mean		7723.5629	491.7629	.8886	2.3229	5.6357	6.3500	12.9943
Std. Error of Mean		241.80708	35.76040	.03820	.07978	.35687	.35768	.70000
Median		8127.2700	466.6900	.9000	2.2900	5.6400	6.2900	12.5000
Std. Deviation		639.76139	94.61312	.10107	.21109	.94419	.94633	1.85202
Variance		409294.634	8951.643	.010	.045	.891	.896	3.430
Skewness		-.719	1.241	.035	.347	.849	1.029	1.893
Std. Error of Skewness		.794	.794	.794	.794	.794	.794	.794
Kurtosis		-1.443	2.023	2.102	-1.023	1.313	1.168	3.808
Std. Error of Kurtosis		1.587	1.587	1.587	1.587	1.587	1.587	1.587
Range		1596.59	284.29	.34	.58	2.96	2.86	5.33
Minimum		6730.80	390.35	.72	2.07	4.40	5.24	11.53
Maximum		8327.39	674.64	1.06	2.65	7.36	8.10	16.86

Table 5: Statistical indicators for the manufacturing industry in Serbia  
 (Note: Authors' calculation using the SPSS software package)

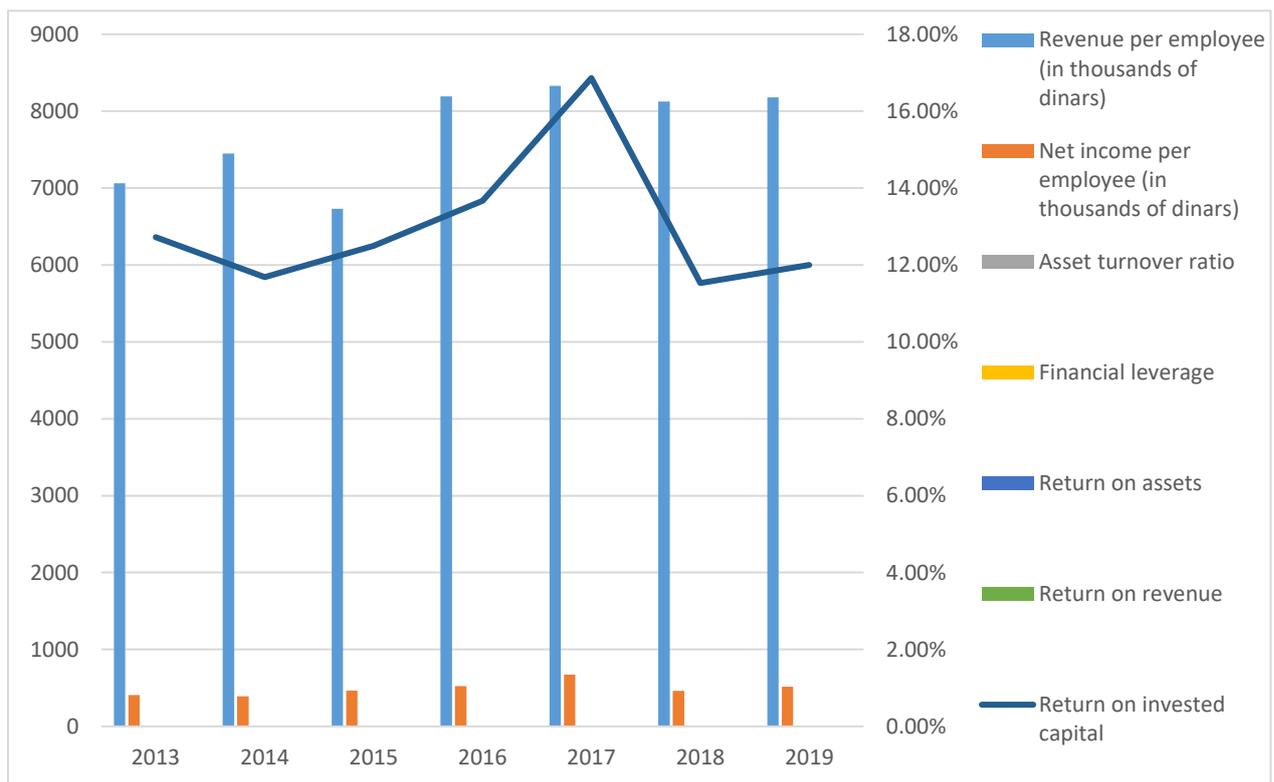


Figure 1: Ratio analysis

Ratio analysis and statistical indicators show that the performance of the manufacturing industry in Serbia was continuously improving in the period 2013-2019, except in 2018, when it slightly deteriorated. For the purpose of applying the CODAS method, the weight coefficients of the criteria were determined using the AHP method (The calculation was performed using AHP Software-Excel). Table 6 shows the initial comparison matrix obtained using the AHP method with the arithmetic mean.

<b>AHP with Arithmetic Mean Method</b>					
<b>Initial Comparison Matrix</b>					
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>A</b>	1	1	2	1	2
<b>B</b>	1	1	2	1	1
<b>C</b>	0.5	0.5	1	2	1
<b>D</b>	1	1	0.5	1	2
<b>E</b>	0.5	1	1	0.5	1
SUM	4	4.5	6.5	5.5	7

Note: Authors' calculation using AHP Software-Excel software. A - number of employees, B - assets, C - capital, D – revenue, and E - net income

*Table 6: Initial comparison matrix*

Table 7 shows the normalised matrix obtained using the AHP method with the arithmetic mean.

<b>Normalised Matrix</b>						
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>Weights of Criteria</b>
<b>A</b>	0.2500	0.2222	0.3077	0.1818	0.2857	0.2495
<b>B</b>	0.2500	0.2222	0.3077	0.1818	0.1429	0.2209
<b>C</b>	0.1250	0.1111	0.1538	0.3636	0.1429	0.1793
<b>D</b>	0.2500	0.2222	0.0769	0.1818	0.2857	0.2033
<b>E</b>	0.1250	0.2222	0.1538	0.0909	0.1429	0.1470
					SUM	1

**Consistency Ratio 0.0677**  
**COMPARE WITH 0.1; IT SHOULD BE LESS THAN 0.1.**

Note: Authors' calculation using AHP Software-Excel software. A - number of employees, B - assets, C - capital, D - revenue and E - net income

*Table 7: Normalised matrix*

The number of employees is the most important criterion. It is followed by assets, revenue, capital and net income. Thus, the efficiency of human capital management can significantly influence the performance of Serbian manufacturing industry.

Table 8 shows the initial decision matrix.

<b>Initial Matrix</b>					
<b>Weights of criteria</b>	0.2495	0.2209	0.1793	0.2033	0.147
<b>Kind of criteria</b>	1	1	1	1	1
	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>C5</b>
<b>A1</b>	313256	2078	1006	2212	128
<b>A2</b>	299732	2657	1002	2232	117
<b>A3</b>	304273	2834	1136	2048	142
<b>A4</b>	320140	2981	1229	2623	168
<b>A5</b>	340923	3124	1364	2839	230
<b>A6</b>	367282	3265	1474	2985	170
<b>A7</b>	381012	3454	1634	3116	196
<b>MAX</b>	381012	3454	1634	3116	230
<b>MIN</b>	299732	2078	1002	2048	117

*Table 8: Initial matrix*

Table 9 shows the normalised decision matrix.

<b>Normalised Matrix</b>					
<b>Weights of criteria</b>	0.2495	0.2209	0.1793	0.2033	0.147
<b>Kind of criteria</b>	1	1	1	1	1
	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>C5</b>
<b>A1</b>	0.8222	0.6016	0.6157	0.7099	0.5565
<b>A2</b>	0.7867	0.7693	0.6132	0.7163	0.5087
<b>A3</b>	0.7986	0.8205	0.6952	0.6573	0.6174
<b>A4</b>	0.8402	0.8631	0.7521	0.8418	0.7304
<b>A5</b>	0.8948	0.9045	0.8348	0.9111	1.0000
<b>A6</b>	0.9640	0.9453	0.9021	0.9580	0.7391
<b>A7</b>	1.0000	1.0000	1.0000	1.0000	0.8522

Table 9: Normalised matrix

Table 10 shows the weighted normalised decision matrix.

<b>Weighted Normalised Matrix</b>					
	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>C5</b>
<b>A1</b>	0.2051	0.1329	0.1104	0.1443	0.0818
<b>A2</b>	0.1963	0.1699	0.1100	0.1456	0.0748
<b>A3</b>	0.1992	0.1812	0.1247	0.1336	0.0908
<b>A4</b>	0.2096	0.1906	0.1349	0.1711	0.1074
<b>A5</b>	0.2232	0.1998	0.1497	0.1852	0.1470
<b>A6</b>	0.2405	0.2088	0.1617	0.1948	0.1087
<b>A7</b>	0.2495	0.2209	0.1793	0.2033	0.1253

Table 10: Weighted normalised matrix

Table 11 shows the negative-ideal solutions.

<b>A-</b>	0.1963	0.1329	0.1100	0.1336	0.0748
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Table 11: Negative-ideal solutions

Table 12 shows the Euclidean (Ei) and Taxicab (Ti) distances of alternatives from the negative-ideal solution.

<b>Alternatives</b>	<b>Ei</b>	<b>Ti</b>	<b>Threshold parameter</b>	
			<b><math>\tau</math></b>	<b>0.02</b>
<b>A1</b>	0.0156	0.0270		
<b>A2</b>	0.0389	0.0490		
<b>A3</b>	0.0531	0.0820		
<b>A4</b>	0.0813	0.1661		
<b>A5</b>	0.1211	0.2574		
<b>A6</b>	0.1236	0.2669		
<b>A7</b>	0.1510	0.3307		

Table 12: Euclidean and Taxicab distances of alternatives from the negative-ideal solution

Table 13 shows the relative assessment matrix.

Relative Assessment Matrix							
	C1	C2	C3	C4	C5	C6	C7
A1	0.0000	-0.0454	-0.0925	-0.2048	-0.3359	-0.3480	-0.4391
A2	0.0454	0.0000	-0.0142	-0.1594	-0.2905	-0.3026	-0.3938
A3	0.0925	0.0142	0.0000	-0.1123	-0.2434	-0.2555	-0.3466
A4	0.2048	0.1594	0.1123	0.0000	-0.1311	-0.1432	-0.2343
A5	0.3359	0.2905	0.2434	0.1311	0.0000	-0.0026	-0.1032
A6	0.3480	0.3026	0.2555	0.1432	0.0026	0.0000	-0.0911
A7	0.4391	0.3938	0.3466	0.2343	0.1032	0.0911	0.0000

Table 13: Relative assessment matrix

Table 14 and Figure 2 show the ranking of alternatives.

	Alternatives	Hi	Hi	Ranking
2013	A1	-1.466	-1.466	7
2014	A2	-1.115	-1.115	6
2015	A3	-0.851	-0.851	5
2016	A4	-0.032	-0.032	4
2017	A5	0.895	0.895	3
2018	A6	0.961	0.961	2
2019	A7	1.608	1.608	1

Table 14: Ranking of alternatives

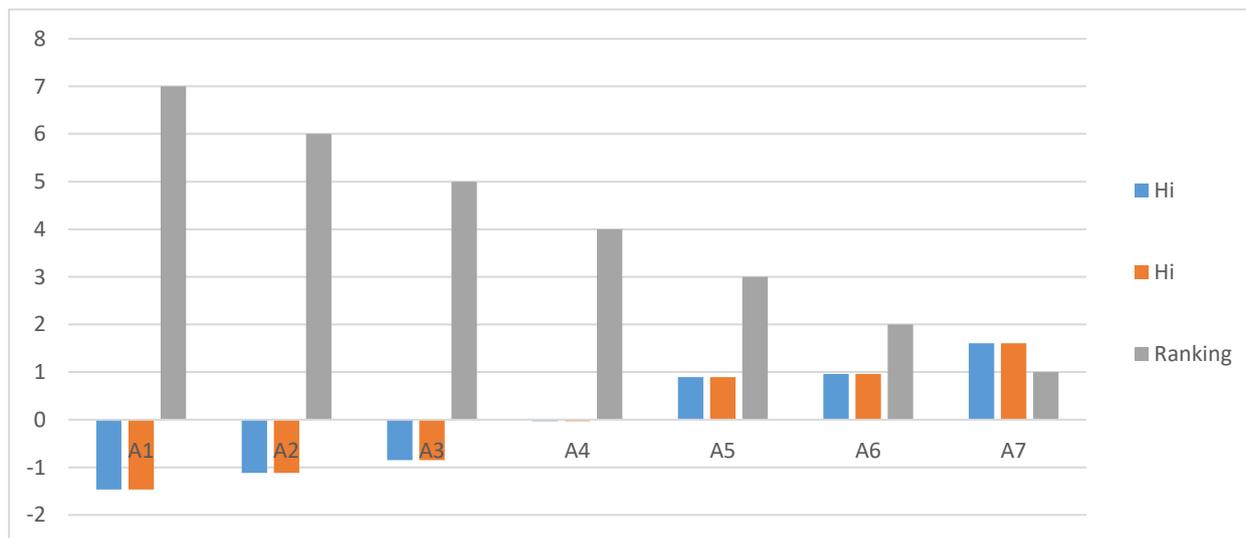


Figure 2: Ranking of alternatives

The results of empirical research obtained using the CODAS method are almost entirely consistent with the results of ratio analysis. They indicate that in the observed period (2013 - 2019) the efficiency of the manufacturing industry in Serbia increased year on year, reaching its peak in 2019. This was positively influenced by numerous macro and micro factors. Among other factors, the growing number of international companies setting up in Serbia that use new technologies and business methods (for example, the application of the Kaizen concept) as well as the digitalisation of business processes had a positive impact on labour productivity and efficiency of the manufacturing industry in Serbia.

#### 4. CONCLUSION

Based on the results of empirical research obtained using the CODAS method, it can be concluded that in the observed period (2013 - 2019) the efficiency of the manufacturing industry in Serbia increased year on year. The highest efficiency was achieved in 2019. This trend was supported by numerous macro and micro factors. Among other things, the rising number of international companies in Serbia that use new technologies and business methods (for example, the application of the Kaizen concept) as well as the digitalisation of business processes played a significant role in this. To increase the efficiency of the manufacturing sector in Serbia in the future, it is necessary to manage human capital, assets, capital, sales and profits as efficiently as possible.

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## GREEN CITIES, THE INTERNET OF THINGS AS A PREREQUISITE FOR SUSTAINABILITY

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### **ABSTRACT**

*Human civilization has been able to continuously improve and move its functioning forward as it develops. Man, as an essential component of this system, has always been able to adapt and adapt to the new conditions that influenced him. The digital revolution has changed the lives of millions of people. The Internet and digital devices provide access to many services and make everyday life easier while leading to direct energy savings. Internet of things is gradually coming to the attention of the public, and in today's world, the company needs to constantly find innovations to achieve success in the market with its product or service. Internet of Things is a network of physical devices such as personal health monitors, smart appliances, and autonomous transport systems that are built into digital technologies that allow devices to communicate with each other by collecting and communicating data. They have the potential to introduce intelligent electric screens in smart homes or smart cities. It is one of the technologies that is being introduced precisely in the context of the green economy. In the paper, we will focus on the use of the Internet of Things in connection with building green cities. Currently, around 70% of the population lives in the city, and the consequences of climate change affect them more than rural areas. By 2050, this is projected to be around 78%, and it is therefore essential that emerging urbanism focuses on preventing negative climate change and uses innovation to reduce energy consumption in buildings or smart transportation systems.*

**Keywords:** *Digital technologies, Green cities, Innovation, Internet of things, Smart cities, Sustainability*

### **1. INTRODUCTION**

Today, more than half of the planet is online thanks to the Internet. It has contributed significantly to interdependence, also almost 40% of the world's population uses the products of the digital economy every day. The digital economy is a new industry, new types of companies, and new business models. They are also new technologies and new solutions that have changed the lives of millions of people. Digital technologies are currently the bearers of an innovative approach and a crucial prerequisite for meaningful digitization and the onset of a new industrial intelligent revolution. Ever since the very inception of the Internet in 1989, people have begun to think about gradually connecting things to this broad-spectrum network. The so-called "Trojan room coffee pot" was probably the first application of its kind in the world. In 1990, John Romkey created the first "Internet device," a toaster that could be turned on and off via the Internet. In 1994, Steve Mann invented the hidden camera that one could attach to clothes and record the world around him. It stored video in its near-real-time memory and worked on a 64-bit processor. In his 1997 essay, Paul Saffo briefly described the sensors and the possibilities for their future use. The term Internet of Things was first used in 1999 by Kevin Ashton, who was the CEO of AutoIDCentrum at MIT. In the same year, his team also invented an object identification system based on the RFID system. In 2003, RFID technology was deployed massively in the United States Armed Forces. In the same year, Walmart took a similar step, using RFID in all its stores to mark goods. The Internet of Things gradually entered the media.

In 2008, a group of companies decided to create a so-called IPSO Alliance, which has promoted the use of the Internet Protocol (IP) in "smart object" networks and has raised awareness of the Internet of Things. In 2008, the Federal Communications Commission (FCC) authorized the use of the so-called White space spectrum, a new type of frequency for information dissemination. The Internet of Things is gradually coming into everyday life, also thanks to investments and innovations of technology companies such as Cisco, IBM, and others.

## **2. INTERNET OF THINGS AND THE DIGITAL REVOLUTION**

The Internet of Things in the narrower sense is defined as a network that connects identifiable "things" with the Internet. "Things" can capture, control, and are programmable. By using unique identification and scanning, information about "things" can be collected and "things" can be changed anywhere, anytime, and by anyone. It is part of Industry 4.0. Industry 4.0 was first mentioned in Hanover, Germany, at a technology fair in 2011. In general, Industry 4.0, or the Fourth Industrial Revolution is the name of a major change in the industry. It was one way of preventing a decline in industrial production, which was often relocated to cheaper countries due to cost reductions. In 2013, the German government made recommendations for the implementation of the Industry 4.0 project. Digitization is the bearer of Industry 4.0. The impact of digitization has extensive interaction and spills over into many spheres. It also affects the labor market. When implementing automation systems, IT departments require specialists in the management of communication or computer technology, specialists in the field of database systems and computer networks, or software developers. These specializations are also needed to use the Internet of Things (Haaker, T. et. al. 2021). The goal of the Internet of Things is the digital interconnection of objects, devices, their mutual communication, and the exchange of information. According to the IDC (International Data Corporation) forecast, 41 billion devices will be connected to the Internet of Things by 2025, and these devices are expected to generate 79.4 zettabytes of data. Manufacturers and service providers will generate new products and services by sharing devices collected from each other, thanks to sensors. Based on the received inputs, it is possible to change behavior, and store instructions and so, thanks to digital interaction, we can also save resources. With IoT technology, data can be shared across a network and transferred to a remote location with real performance improvements for the end-user. Economists Erik Brynjolfsson and Andrew McAfee pointed out in *The Second Machine Age* that the revolution could make a difference between the people. Like previous revolutions, the Fourth Industrial Revolution also has the potential to improve the quality of life of the world's population. New technologies and advances have brought major changes to many countries, e.g. over the last 30 years, the number of people living in poverty in India has fallen from 60% to 22%, and in China, 600 million people have been lifted out of poverty over the same period. This positive development has an impact on energy consumption, consumption of goods and services, and changes in the urban environment. Urban development, the growing need for real estate for work or housing, should accept effective and synergistic solutions in line with sustainable urban development. In addition, the growing interest in renewable energy is responding to growing global energy demand, especially in emerging market economies, which has potentially negative effects on the environment, especially in the long term, on nature and climate change. Remotely controlled or autonomous mechanical devices with integrated intelligence that can perceive their environment, and their condition and can even act accordingly. Combining the physical features of the Internet of Things with smart devices provides opportunities for emerging applications with inherently autonomous features and self-assessment features.

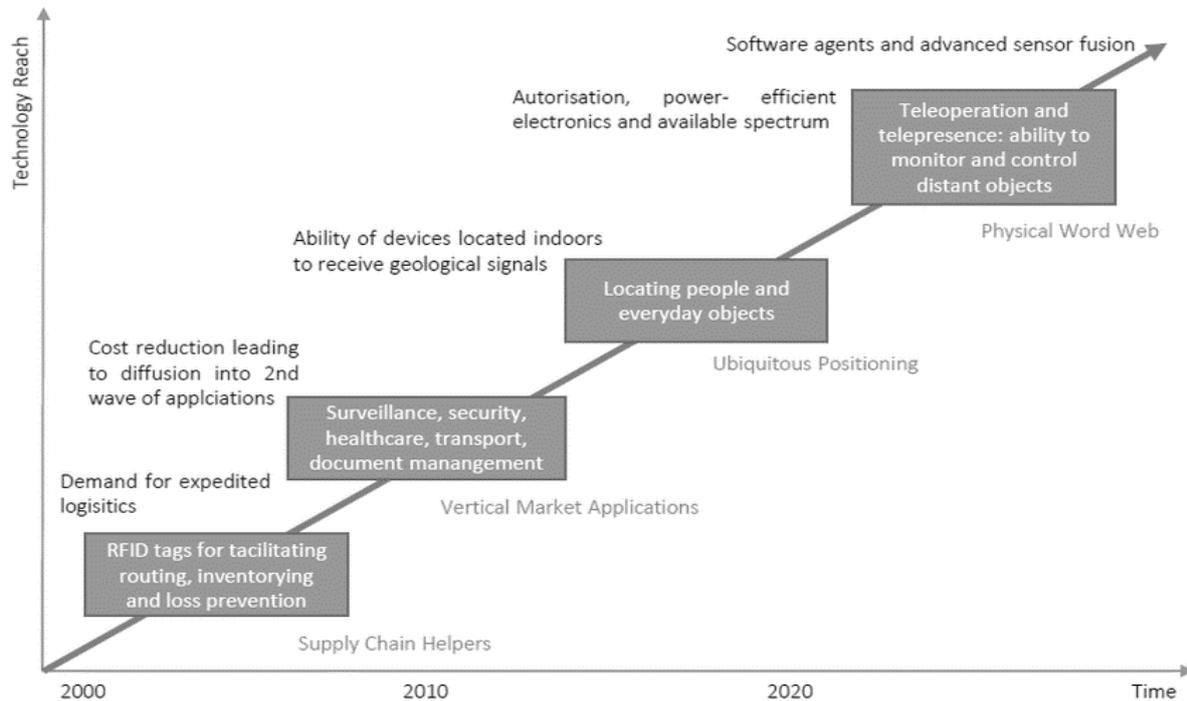


Figure 1: Technology roadmap for the Internet of Things  
(Source: Tohanean, D, Vasilescu, A. 2019)

### 3. POSSIBILITIES OF USING IOT IN THE URBAN ENVIRONMENT

IoT is growing at a tremendous pace, offering opportunities for new innovative models that also improve citizens' quality of life and can provide more effective and efficient support to people. It is an important element for the implementation of an intelligent environment. Smart environments include smart homes, smart cities, and smart manufacturing. Among the entities that can use the Internet of Things most effectively are, in addition to production, also public services, transport, and logistics. At the same time, they are entities that are part of the Smart cities Concept, which is a comprehensive approach to the functioning of the urban region. The concept of smart cities extends to various social areas, culture, infrastructure, environment, energy, and social services. It is important at present to use this concept to support the development of green cities with a view to sustainability, as urbanization is accelerating and it is necessary to focus on the development of urban green spaces, water protection, and energy reduction. Around 78% of the population is expected to live in cities in 2050, which will be energy-intensive, and it is, therefore, necessary to focus on green innovation in cities. The introduction of green digital technologies is therefore crucial for diversifying local, sustainable activities to protect the environment and improve people's living conditions.

#### 3.1. Green cities

The advantage of living in cities is the quality of transport, job offers, availability of services, but we should not forget that we have only one planet. Nature cannot be replaced by anything, so it needs to be respected and respected as the rate of settlement grows. In 1972, the Rome Club formulated in its study "Limits to Growth" the negative impact of excessive resource consumption on the environment. Over the last forty years, an international debate on eco-city theory has developed and an important research area concerning the future of urbanism and the city itself. This is green urbanism, whose representatives deal with many problems, the way buildings are built, the energy efficiency of buildings, and the need to revitalize the city (Banham, 1969; Braungart - McDonough, 2002; Jenks - Burgess, 2000).

The theories of Jenks and Burgess, 2000, Lehmann, 2005, include visions based on the belief that the green future of a city can only be achieved by using the principles of sustainable urban design. In the 21st century, we need new types of cities because we have entered a "new era of uncertainty" in which the supply of energy, water, and food is critical. "We live in a world of increasingly incalculable uncertainty, which we create at the same rate as technological development." (Beck, 2000). According to Lehmann for buildings to have the minimum adverse impact on the natural and built environment, energy-efficient building design needs to balance a whole range of requirements from various inter-linked issues, including (but not limited to):

- design strategies based on a deep understanding of site and context
- strategies for energy efficiency (operational and embodied)
- strategies for water efficiency
- material efficiency: focusing on material flows and embodied energy (life cycle)
- overall material and waste streams during construction, operation, and demolition
- integrating passive design principles, such as optimizing the building's shape and orientation, employing natural ventilation, use of daylight, thermal mass, sun shading, solar gains, the use of courtyard typologies, etc.
- reducing overall greenhouse gas emissions from construction, operation, and demolition
- integrating community well-being and sundry social dimensions
- health and quality of indoor environment (occupants' comfort).

Supporting the construction of green cities is one of the ways how the city can function sustainably, save energy, and manage water to protect the environment. Because cities consume the most energy. At present, we are increasingly encountering the concept of a green city and it is evaluated based on several factors. Housing quality, green space in cities, transport, waste management, noise, air quality, etc. are measured. According to the IHS (Institute for Housing and Urban Development Studies), the Green City Concept is one of the concepts that emphasizes the importance of efficient energy use, which in turn has an impact on quality of life, housing, etc. In the countries of the European Union, the European Index of Green Cities assesses the quality of cities. The European Green City Index measures and rates the environmental performance of 30 leading European cities from 30 European countries. It takes into account 30 individual indicators per city, touching on a wide range of environmental areas, from environmental governance and water consumption to waste management and greenhouse gas emissions.<sup>1</sup> The index aims to enable key stakeholder groups, such as city managers, policymakers, infrastructure providers, NGOs, and citizens, to compare the level of their city within each criterion. The index allows comparisons between cities and is a tool for progress toward tackling climate change and other environmental challenges. We can use the already mentioned internet of things to obtain data in individual cities. According to Miorandi et al. (2012) are six main application areas where we can use IoT technologies - environmental monitoring, smart city building, smart business, smart buildings and smart building management, healthcare, and security.

*Table following on the next page*

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<sup>1</sup> European Green City Index. Available on: [european-green-city-index.pdf](http://european-green-city-index.pdf) (siemens.com)

Category	Indicator	Type	Weighting	Description	Normalisation technique
CO <sub>2</sub>	CO <sub>2</sub> emissions	Quantitative	33%	Total CO <sub>2</sub> emissions, in tonnes per head.	Min-max.
	CO <sub>2</sub> intensity	Quantitative	33%	Total CO <sub>2</sub> emissions, in grams per unit of real GDP (2000 base year).	Min-max; lower benchmark of 1,000 grams inserted to prevent outliers.
	CO <sub>2</sub> reduction strategy	Qualitative	33%	An assessment of the ambitiousness of CO <sub>2</sub> emissions reduction strategy.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
Energy	Energy consumption	Quantitative	25%	Total final energy consumption, in gigajoules per head.	Min-max.
	Energy intensity	Quantitative	25%	Total final energy consumption, in megajoules per unit of real GDP (in euros, base year 2000).	Min-max; lower benchmark of 8MJ/€GDP inserted to prevent outliers.
	Renewable energy consumption	Quantitative	25%	The percentage of total energy derived from renewable sources, as a share of the city's total energy consumption, in terajoules.	Scored against an upper benchmark of 20% (EU target).
	Clean and efficient energy policies	Qualitative	25%	An assessment of the extensiveness of policies promoting the use of clean and efficient energy.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
Buildings	Energy consumption of residential buildings	Quantitative	33%	Total final energy consumption in the residential sector, per square metre of residential floor space.	Min-max.
	Energy-efficient buildings standards	Qualitative	33%	An assessment the extensiveness of cities' energy efficiency standards for buildings.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
	Energy-efficient buildings initiatives	Qualitative	33%	An assessment of the extensiveness of efforts to promote energy efficiency of buildings.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
Transport	Use of non-car transport	Quantitative	29%	The total percentage of the working population travelling to work on public transport, by bicycle and by foot.	Converted to a scale of 0 to 10.
	Size of non-car transport network	Quantitative	14%	Length of cycling lanes and the public transport network, in km per square metre of city area.	Min-max. Upper benchmarks of 4 km/km <sup>2</sup> and 5 km/km <sup>2</sup> inserted to prevent outliers.
	Green transport promotion	Qualitative	29%	An assessment of the extensiveness of efforts to increase the use of cleaner transport.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
	Congestion reduction policies	Qualitative	29%	An assessment of efforts to reduce vehicle traffic within the city.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
Water	Water consumption	Quantitative	25%	Total annual water consumption, in cubic metres per head.	Min-max.
	Water system leakages	Quantitative	25%	Percentage of water lost in the water distribution system.	Scored against an upper target of 5%.
	Wastewater treatment	Quantitative	25%	Percentage of dwellings connected to the sewage system.	Scored against an upper benchmark of 100% and a lower benchmark of 80%.
	Water efficiency and treatment policies	Qualitative	25%	An assessment of the comprehensiveness of measures to improve the efficiency of water usage and the treatment of wastewater.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
Waste and land use	Municipal waste production	Quantitative	25%	Total annual municipal waste collected, in kg per head.	Scored against an upper benchmark of 300 kg (EU target). A lower benchmark of 1,000 kg inserted to prevent outliers.
	Waste recycling	Quantitative	25%	Percentage of municipal waste recycled.	Scored against an upper benchmark of 50% (EU target).
	Waste reduction and policies	Qualitative	25%	An assessment of the extensiveness of measures to reduce the overall production of waste, and to recycle and reuse waste.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
	Green land use policies	Qualitative	25%	An assessment of the comprehensiveness of policies to contain the urban sprawl and promote the availability of green spaces.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
Air quality	Nitrogen dioxide	Quantitative	20%	Annual daily mean of NO <sub>2</sub> emissions.	Scored against a lower benchmark of 40 ug/m <sup>3</sup> (EU target).
	Ozone	Quantitative	20%	Annual daily mean of O <sub>3</sub> emissions.	Scored against a lower benchmark of 120 ug/m <sup>3</sup> (EU target).
	Particulate matter	Quantitative	20%	Annual daily mean of PM <sup>10</sup> emissions.	Scored against a lower benchmark of 50 ug/m <sup>3</sup> (EU target).
	Sulphur dioxide	Quantitative	20%	Annual daily mean of SO <sub>2</sub> emissions.	Scored against a lower benchmark of 40 ug/m <sup>3</sup> (EU target).
	Clean air policies	Qualitative	20%	An assessment of the extensiveness of policies to improve air quality.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
Environmental governance	Green action plan	Qualitative	33%	An assessment of the ambitiousness and comprehensiveness of strategies to improve and monitor environmental performance.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
	Green management	Qualitative	33%	An assessment of the management of environmental issues and commitment to achieving international environmental standards.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.
	Public participation in green policy	Qualitative	33%	An assessment of the extent to which citizens may participate in environmental decision-making.	Scored by Economist Intelligence Unit analysts on a scale of 0 to 10.

*Table 1: European Green City Index  
(Source: european-green-city-index.pdf)*

### 3.2. Contribution to sustainability in Slovak cities

Urban life has changed significantly in recent years. The population is growing, purchasing power has increased. Lifestyle has also changed, bringing new challenges. The traffic situation has deteriorated, and the quality of the environment has declined due to emissions and construction, as green areas give way to concrete structures and areas. The volume of waste has increased, and efforts to separate and recycle have raised the demands on its management. All this is crowned by the weak interaction of citizens with local governments. Intelligent lighting with electric vehicle charging, energy consumption monitoring, parking system and parking control, air quality monitoring, or analysis of data on the demographic behavior of the population are areas where innovative solutions are used, combined with modern technologies, smartphones or the Internet of Things (Internet of Thing). - IoT), to improve life in Slovak towns and villages. The most widely used IoT networking standards include LoRaWAN (Long Range Wide Area Network) and NB-IoT (NarrowBand-IoT). The test operation of the LoRaWAN network started in April 2016 in three Slovak cities - Košice, Poprad, and Trenčín. At present, it covers all regional settlements, more than half of the districts, and several other smaller towns and villages. The NB IoT fixed network is an advantageous solution especially for monitoring technological water meters, water meters with higher consumption, to avoid losses for water companies. Several larger or smaller cities in Slovakia use the Internet of Things to collect and process data on the demographic behavior of the population, to monitor energy consumption, air monitoring, intelligent lighting, parking management, and more. Just as technical security is needed for IoT, a qualified human capital, an information-literate individual, is a necessary precondition for its functioning. Through a regional analysis of job offers with a focus on IoT in the period 14th February to 11th March 2022, we found that most offers are in the Bratislava region. Technology companies are concentrated in this region. Due to the number of job offers in other regions, this offer is evenly distributed, and the jobs offered are in the economic centers of these regions. The amount of the monthly salary ranges from a minimum of € 800 to a maximum of € 3,500. The hourly wage is at least € 1 - max € 23, median € 5 and average € 8.

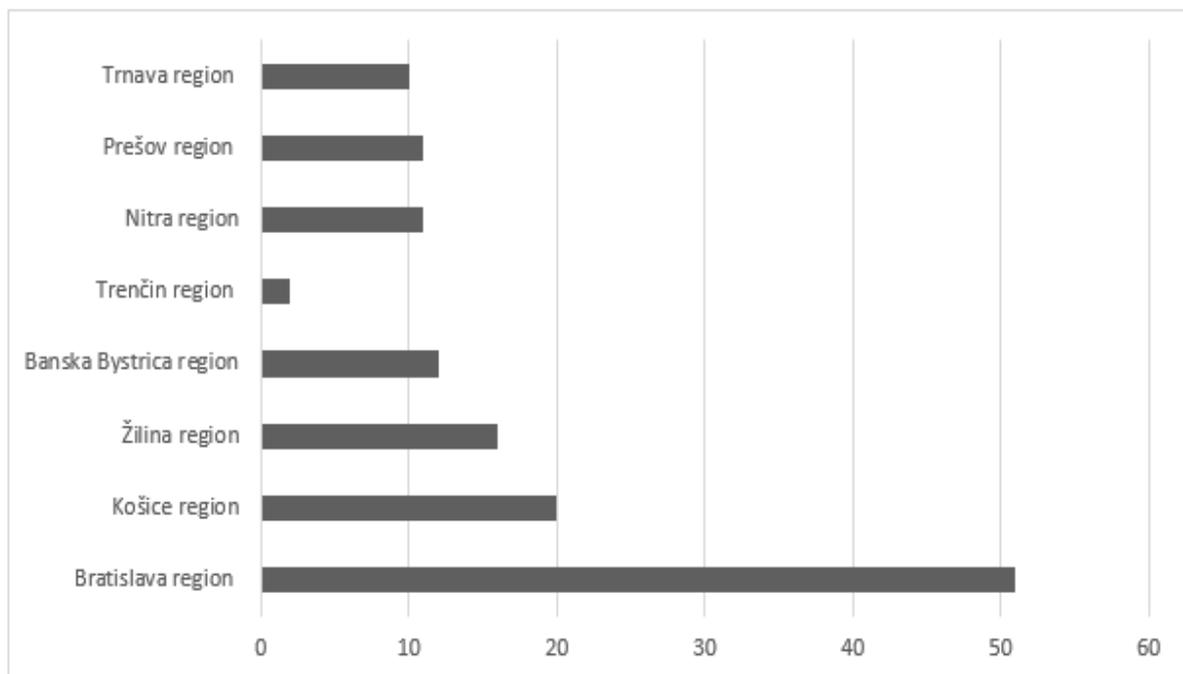


Figure 2: Overview of job vacancies for IoT platforms - regional analysis  
(Source: processed on the basis of data from the 8h.sk portal)

In addition to job offers, we also examine the automation readiness index. The index compares countries in their readiness for the age of intelligent automation. The evaluation found that there is no comprehensive policy in the field of innovation, education, and the labor market that specifically addresses automation issues. Only South Korea, Germany, and Singapore (the overall leader in the index) have implemented some initiatives, reformed the curriculum, and focused on lifelong learning, training, and flexibility in the workplace. In Slovakia, we are seeing a gradual increase in this area, but it is necessary to focus more on innovation policy, labor market policy, and education policy. Based on sub-indices, digital literacy is increasing in Slovakia, but there has been a problem with digital poverty. Low-income households with children are among the population groups that have the most difficulty accessing online services. In terms of future developments, this group may cause problems with the use of the Internet of Things and thus save resources.

#### 4. CONCLUSION

Cities are historically exposed to the greatest pressure from growing populations, traffic collapses, and climate change. Creating the perfect green city is not easy. The main goal is to support the ability to improve the quality of life in a sustainable way. Cities need to have a well-integrated mobility system and the capacity to better manage climate change. We see that cities around the world are struggling with similar problems, but implementing practical solutions to these problems is realistic. It is necessary to build quality transport networks, and waste management using the Internet of Things (IoT) to connect machines, devices, sensors, or objects. For European cities, smart technologies are an opportunity to improve the quality of life while living sustainably.

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## THE IMPACT OF INFLATION ON RESTAURANT PRICES IN CROATIA IN THE TOURIST SEASON 2022

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### ABSTRACT

*Inflation, ie the process of increasing prices in the country where money loses its value, results in changes in costs, consumption, production, investment, savings and budget. During 2021, and especially at the beginning of 2022, prices at the level of the European Union began to rise sharply. There are many causes of this growth. First of all, these are the increase in energy prices and the synergy effect on other activities. EU member states are trying in various ways to curb rising prices to help maintain citizens' standards. In order to reduce the effect of chain price increases, the Republic of Croatia adopted amendments to the Value Added Tax Law which reduced VAT rates on gas as energy and food. In addition, the authors of the paper conducted research on restaurants in the Republic of Croatia and their preparations for the upcoming tourist season. The aim of this paper is to investigate whether these measures to reduce the VAT rate will affect the formation of prices in restaurants and what financial results are expected by caterers at the end of the season.*

**Keywords:** *financial result, inflation, price calculation, tax reform*

### 1. INTRODUCTION

Inflation is an increase in the general level of prices, ie a decrease in the value of money. It appears as a consequence of imbalances in the economy. The specificity of inflation is reflected in the fact that it can occur in developed and underdeveloped countries, superficially in large or small countries. Problems with inflation exist as much as money (Benić, 2016). According to the classical theory of inflation, it is a monetary phenomenon caused by the increased amount of money in circulation and the growing speed of money circulation (Reić, Mihaljević Kosor, 2011). On the other hand, modern inflation theory shows a link between the inflation rate and the unemployment rate. According to her, when the unemployment rate is low, wages rise rapidly, and when employment is high, wages rise slowly. Therefore, the inflation rate is lower with a higher unemployment rate. In the mid-1970s, two short-term and one long-term curves that exist at the natural rate of unemployment began to be used, and were named after A. W. Phillips, who presented the relationship between unemployment, inflation, and growth. If unemployment falls below the natural rate due to output growth, then inflation rises above the inertial rate. Conversely, if unemployment rises above the natural rate then inflation tends to fall below the inertial rate. When trying to keep the unemployment rate, by economic policy makers, below the natural rate over a long period of time then inflation tends to spiral upwards.

The natural unemployment rate is the lowest sustainable rate a country can afford without the risk of an upward spiral of inflation. This rate represents the level of unemployment of resources at which the labor market and products are in inflationary equilibrium (Reić, Mihaljević Kosor, 2011). Also, by introducing higher taxes, the state increases inflation, which leads to an increase in operating costs. According to Samuelson, there are four types of inflation according to intensity. Inflation, which is long-term and amounts to 2-3% per year, is called mild, or creeping inflation. It increases the purchasing power of the population and is not a problem because of the above. Annual inflation of 5-10% is considered moderate inflation. In a situation where prices are relatively stable, citizens still have confidence in money and keep their wealth in money. If the inflation rate is a double-digit or three-digit percentage (eg 30, 100 or 150%), it is called strong or galloping inflation. The value of money is declining, and citizens do not want to keep their wealth in new ones, but invest in tangible assets in order to preserve its value. If the inflation rate is 1000% or higher, it is called hyperinflation. In cases of hyperinflation, money constantly loses its value and is replaced by barter, ie the exchange of goods or services, for some other goods or services (Samuelson, Nordhaus, 2011). Regardless of the type and cause, any inflation causes consequences such as increased imports, reduced exports, changes in the balance of payments in a way that reduces international reserves or increases personal consumption at the expense of savings.

## 2. INFLATION IN THE EUROPEAN UNION IN 2021 AND EARLY 2022

According to Eurostat, ie the statistical office of the European Union, the average inflation rate at the level of the entire Union (27 member states) was 2.9% (Eurostat, 2022). An overview of inflation rates individually by EU member states (27 member states) in the period 2015-2021 (observed as the base year in 2015) is given in Table 1.

Country	2015	2016	2017	2018	2019	2020	2021
Austria	-0.7	-0.2	1.6	1.2	2.1	3.7	5.2
Belgium	0.6	1.8	2.2	2.3	1.2	0.4	3.2
Bulgaria	-1.1	-1.3	1.2	2.6	2.5	1.2	2.8
Croatia	-0.3	-0.6	1.3	1.6	0.8	0.0	2.7
Cyprus	-1.5	-1.2	0.7	0.8	0.5	-1.1	2.3
Czechia	0.3	0.6	2.4	2.0	2.6	3.3	3.3
Denmark	0.2	0.0	1.1	0.7	0.7	0.3	1.9
Estonia	0.1	0.8	3.7	3.4	2.3	-0.6	4.5
Finland	-0.2	0.4	0.8	1.2	1.1	0.4	2.1
France	0.1	0.3	1.2	2.1	1.3	0.5	2.1
Germany	0.7	0.4	1.7	1.9	1.4	0.4	3.2
Greece	-1.1	0.0	1.1	0.8	0.5	-1.3	0.6
Hungary	0.1	0.4	2.4	2.9	3.4	3.4	5.2
Iceland	0.3	0.8	-1.7	0.7	2.0	1.2	3.7
Ireland	0.0	-0.2	0.3	0.7	0.9	-0.5	2.4
Italy	0.1	-0.1	0.7	0.8	0.5	-1.1	2.3
Latvia	0.2	0.1	2.9	2.6	2.7	0.1	3.2
Lithuania	-0.7	0.7	3.7	2.5	2.2	1.1	4.6
Luxembourg	0.1	0.0	2.1	2.0	1.6	0.0	3.5
Malta	1.2	0.9	1.3	1.7	1.5	0.8	0.7
-Netherlands	0.8	1.0	2.2	2.1	1.5	1.4	2.8
Poland	-0.7	-0.2	1.6	1.2	2.1	3.7	5.2
Portugal	0.5	0.6	1.6	1.2	0.3	-0.1	0.9
Romania	-0.4	-1.1	1.1	4.1	3.9	2.3	4.1
Slovakia	-0.3	-0.5	1.4	2.5	2.8	2.0	2.8
Slovenia	-0.8	-0.2	1.6	1.9	1.7	-0.3	2.0
Spain	-0.6	-0.3	2.0	1.7	0.8	-0.3	3.0
Sweedden	0.7	1.1	1.9	2.0	1.7	0.7	2.7
European union – 27 countries	0.1	0.2	1.6	1.8	1.4	0.7	2.9
Euro area – 19 countries	0.2	0.2	1.5	1.8	1.2	0.3	2.6

Table 1: Overview of annual inflation rate 2015-2021 (in%)  
 (Source: Eurostat)

Table 1 shows that the average inflation rate in the EU in 2021 was 2.9%. If inflation is viewed by country, then significant differences are visible. Thus, the average inflation rate in Greece in 2021 was 0.6%, and in Austria and Hungary 5.2%. The average inflation rate in the Republic of Croatia was 2.7% and was 0.2 percentage points lower than the average in at EU level. If we look at only 19 EU member states that use the euro as their national currency, then the average inflation rate in 2021 was 2.6%. Inflation in 2021 It is a consequence, first of all, of the increase in the price of energy, namely electricity, which on average at the EU level increased by 30%, and gas by 70%, which ultimately affected the formation of the price of final products and services. According to data for January and February 2022, the inflation rate at the level of the European Union in January was 5.11%, and in February 5.87% (Worldwide inflation data, 2022). In the Republic of Croatia in January 2022 prices were on average 5.7% higher on an annual basis, ie compared to prices in January 2021. If the prices from December 2021 and January 2022 are compared, then the prices in January 2022 were 0.3% higher than in December 2021 (Indeksi potrošačkih cijena u siječnju, 2022). In February 2022, compared to February 2021, prices increased by 6.3%. Compared to January 2021, they are 1% higher. Observed by special groups, the largest increase in prices on average on an annual basis was realized in the groups Energy, by 10.4% (contribution to the increase of +1.74 percentage points), Unprocessed food products, by 10.0%, (+0 , 85 percentage points) and Food, beverages and tobacco, by 9.4%, ie +2.92 percentage points (Indeksi potrošačkih cijena u veljači, 2022).

### **3. THE IMPORTANCE OF TOURISM FOR THE ECONOMY OF THE REPUBLIC OF CROATIA**

In the Republic of Croatia, tourism has a large share in gross domestic product (GDP). So in 2016. the share of tourism in GDP was 18%, and that in 2019, before the coronavirus pandemic, the share would be almost 20%. Thus, Croatia ranked at the very top of the European Union member states in terms of the share of tourism in GDP. According to the data of the Croatian National Bank, published by the Croatian National Tourist Board, in the pandemic 2020, Croatia generated 40% of revenues from tourism compared to 2019. As a result, the share of tourism in GDP decreased by more than 45% and amounted to 8.9%. According to the Croatian National Bank (HNB), in the first nine months of 2021, revenues from foreign tourists amounted to 8 billion and 268 million euros, which is an increase of 90 percent of revenues generated during the same period in 2020, or 3 billion and 929 million euros more. Compared to the first nine months of 2019, 88 percent of the revenues generated in that year were generated. In the third quarter, ie during July, August and September 2021, revenues from foreign tourists amounted to 6 billion and 775 million euros, which represents a growth of 100 percent of revenues generated during the same period in 2020, ie revenues of 3 billion and 386 million euros more. Compared to the third quarter of 2019, revenue growth of 2 percent was achieved, ie 148 million euros more than then - in the third quarter of 2019, 6 billion and 627 million euros were earned (Makroekonomski indikatori, 2022).

### **4. INFLATION AND RESTAURANT INDUSTRY IN THE REPUBLIC OF CROATIA**

From the data presented in the third chapter, the dependence on tourism of the entire economy of the Republic of Croatia is indisputable. Therefore, at a time of rising inflation, care must be taken to strike a balance between price adjustments, deteriorating visitor purchasing power and expected tourism revenues. Restoration, as a form of catering, is associated with tourism and tourist offer. During the tourist year 2019, the Institute of Tourism conducted a survey related to the attitudes and consumption of tourists in Croatia - TOMAS survey. According to the results of the research, the average tourist in the Republic of Croatia spends 97.90 euros a day. Of this amount, 53.78%, or 52.65 euros relates to accommodation costs.

After the accommodation costs, the second item that the tourist spends the most on is food in restaurants and bars, on average 16.88 euros per day, which is 17.24% of the average daily consumption. An average of 11.34 euros per day is spent on trade services (TOMAS - Attitudes and consumption of tourists in Croatia, 2019). Since inflation, in addition to directly affecting prices, also affects the standard of living of citizens, and the Republic of Croatia is economically dependent on tourism, it is necessary to find mechanisms to keep prices at a profitable level for employers on the one hand. consumers. On 04/01/2022 In the Republic of Croatia, amendments to the Value Added Tax Act entered into force. The amendments to the law sought to influence the growth of prices by reducing tax rates by reducing tax rates. VAT on gas and heat has been reduced from 25% to 13% with the addition that from 04/01/2022 to 03/31/2023 Gas VAT further reduced to 5%. VAT rate on wood and heating wood products was reduced from 25% to 13%. VAT on fresh meat, fish, eggs, fruits, vegetables, edible oils and fats, baby food and agricultural costs has been reduced from 13% to 5%. Also, VAT rates for tickets for sports, cultural and other events and for certain hygiene items have been changed. (Narodne novine – Official Gazette 39/2022-478). Following the legal changes, food prices in theory should be lower. Table 2 gives a schematic presentation of the calculation of the price of apples until 03/31/2022 (VAT 13%) and after 04/01/2022 (VAT 5%).

Article	Price until 3/31/2022	Price from 4/1/2022	Difference	Difference (in %)
Apple (price without VAT for 1 kg)	8.84 kn	8.84 kn	0,00 kn	0.00
VAT	1.15 kn	0.44 kn	- 0.71 kn	-61.64
Total	9.99 kn	9.28 kn	- 0.71 kn	-7.11

*Table 2: Presentation of the calculation of the price of fresh fruit (apple) before and after the change in VAT rates  
 (Source: authors)*

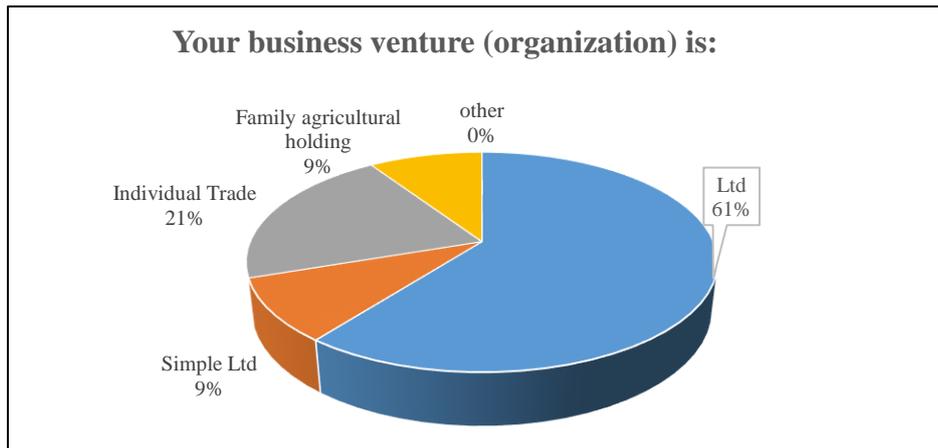
Table 2 shows that the VAT rate decreased by 61.64% (from 13% to 5%), which can, provided equal operating costs, affect the price reduction by 7.11%. Given that, as already mentioned, one of the main causes of inflation is rising energy prices, which in Croatia are limited to an average of 9.6% for electricity and 16% for gas, the effect of rising prices spills over into the entire economy. Therefore, the authors conducted a study on restaurants in the Republic of Croatia to investigate the extent to which tax changes have an effect on price changes in preparation for the 2022 tourist season. The emphasis was on the entire Adriatic coast and the city of Zagreb as the most developed tourist areas in the Republic of Croatia. One main and one auxiliary hypothesis have been set:

- H1: Changes to the Value Added Tax Law will not affect the reduction of prices in restaurants
- H1.1: Reducing the VAT rate will mitigate the effect of price increases in restaurants

## 5. RESEARCH ANALYSIS

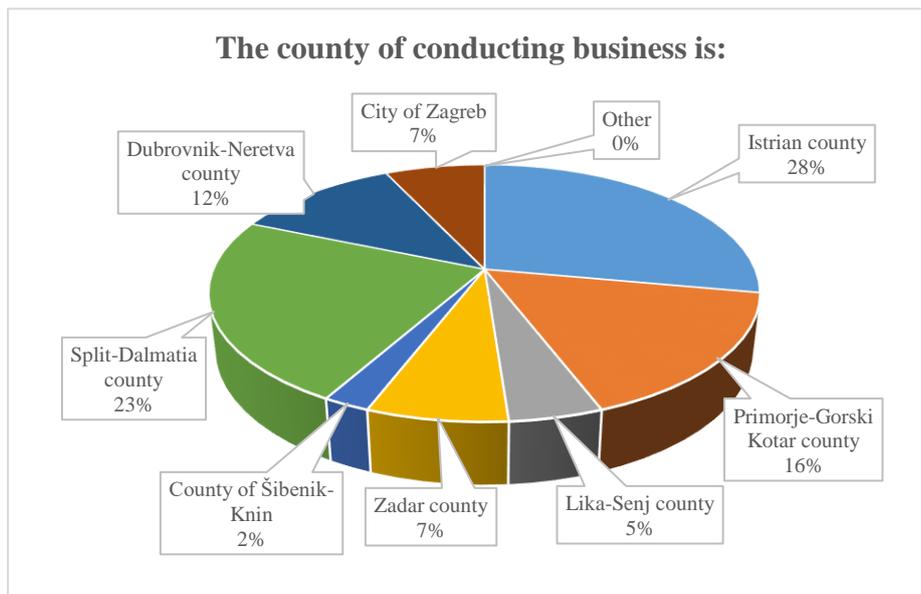
For the purposes of the research, the authors compiled a survey questionnaire consisting of 13 questions. The questionnaire was completed by 43 restaurants, ie the return of correctly completed survey questionnaires is 64%. The first question was asked regarding the form of organization of the business venture. The analysis of the answers is given in Chart 1.

*Chart following on the next page*



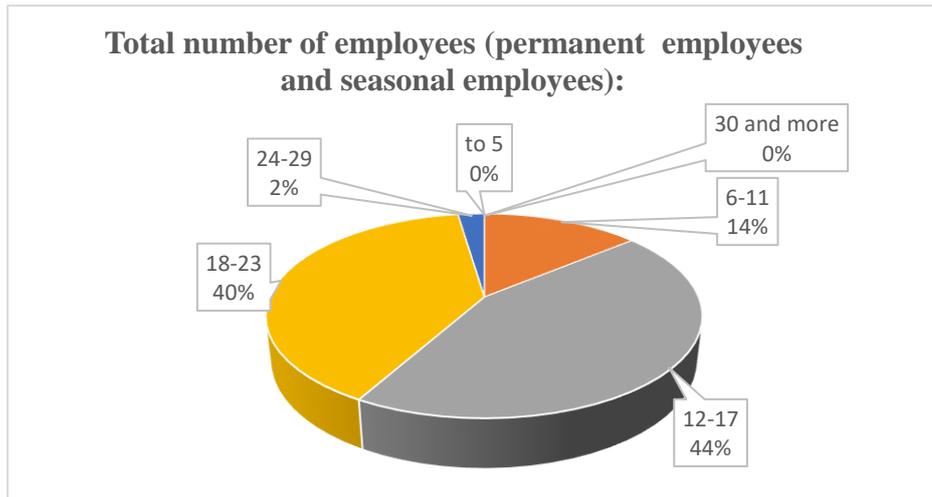
*Chart 1: Respondents by organization of business  
(Source: Authors)*

Chart 1 shows that out of 43 completed questionnaires, 61%, ie 26 entrepreneurs, are limited liability companies, 9 are craftsmen (21% of respondents), and 4 entrepreneurs are organized as simple limited liability companies and family farms. The regional affiliation of the restaurant was examined in the second question. An analysis of this issue is given in the following chart.



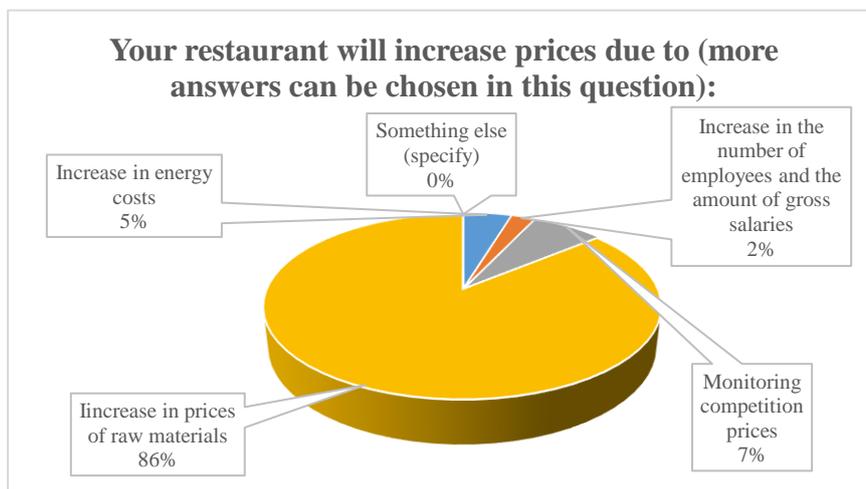
*Chart 2: Respondents by county of doing business  
(Source: Authors)*

Chart 2 shows that 93% of respondents, ie 40 of them, operate on the Adriatic coast, ie outside the City of Zagreb. The third question referred to the seasonality of the work of the facility. Out of 43 restaurants, 27 of them, ie 62.79% of respondents work seasonally. Restaurants, which work seasonally, were asked on Thursday about longer work, with seasonality calculated up to 6 months (crafts can be seasonal by law if they work 6 months at most during the year). Of the 27 seasonal restaurants, 24, or 88.89%, have been operating for 6 months, two have been operating for 5 months, and one for four months (the restaurant focuses exclusively on nautical tourism). The fifth and sixth questions refer to the number of employees and the share of seasonal workers in the total number of employees. The analysis of the fifth question on the number of workers is given in Chart 3.



*Chart 3: Respondents according to the total number of employees  
(Source: Authors)*

Chart 3 shows that the largest number of respondents, 44% of them, have between 12 and 17 employees. No respondent had 5 or fewer employees as well as 30 or more. In the sixth question, respondents answered the question about the share of seasonal workers in relation to the total number of employees. The most common share was 47-62%, which correlates with the answers to the third question, whether the restaurant is open seasonally or all year round. In the seventh question, respondents were asked to answer the question of whether they corrected prices in the 2021 tourist season. 39 of them, ie 90%, answered negatively, ie the prices were the same as in the first tourist pandemic year (2020). In question 8, all respondents answered in the affirmative that they plan to adjust prices for the 2022 season. Also, in Question 9, all respondents answered that they plan to increase prices. The tenth question referred to the main reason for the price increase in 2022. The analysis of the obtained answers is given in Chart 4.



*Chart 4: The main reason for the price increase  
(Source: Authors)*

The largest number of respondents, 37, ie 86%, respectively, cited the increase in prices of raw materials, ie food and beverages, as the main reason for the increase in prices. In the 11th question, the respondents answered the question of how much the price increase in their restaurants will amount to, which is shown in Chart 5.

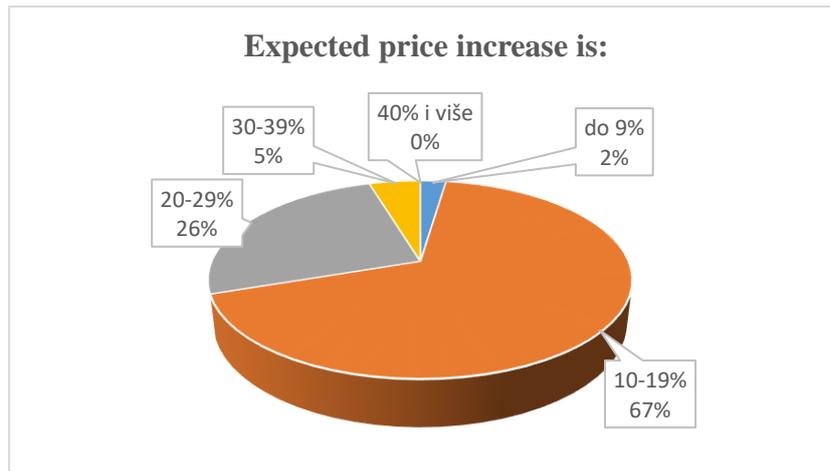


Chart 5: Amount of price increase in the tourist season 2022  
 (Source: Authors)

According to the answers, 29 respondents plan to increase prices between 10 and 19%, while 11 respondents, or 26% of them, plan to increase prices by 20 to 29%. In Question 12, respondents answered the question of whether the reduction of VAT rates on fresh meat, fruits and vegetables, and the reduction of VAT on energy affected the increase in prices in 2022 to be less than planned. 42 of them, or 97.67%, answered no. In the last, 13th question, respondents were asked to answer a question about the expected business result at the end of the 2022 tourist season. On average, most respondents expect revenue growth of up to 9%. An overview of the analysis of this issue is given in Chart 6.

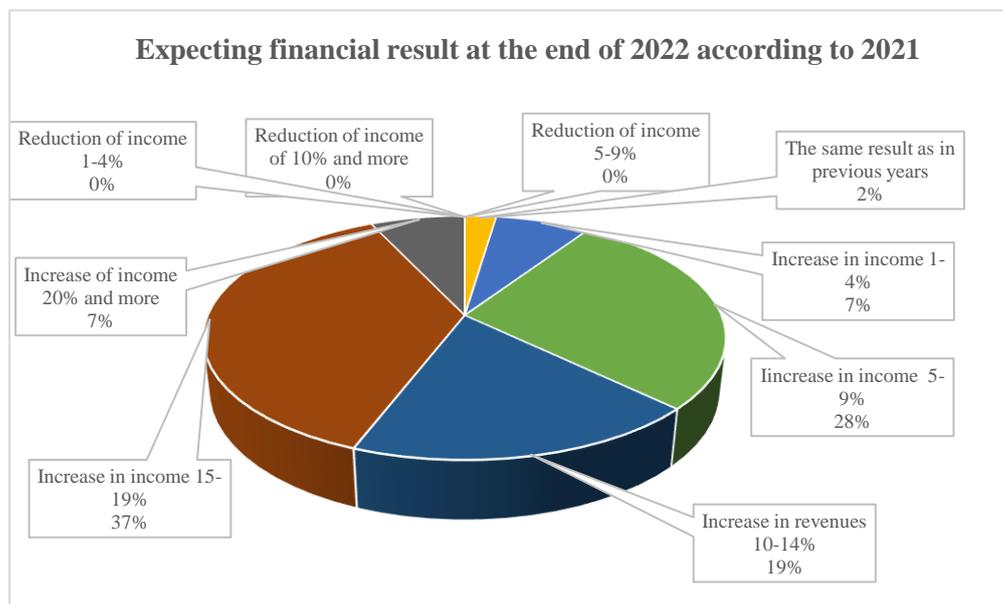


Chart 6: Expected financial result at the end of 2022 compared to 2021.  
 (Source: Authors)

Only 1 respondent expects the same financial results as in 2021. 3 respondents expect an increase of income, ie receipts in the case of crafts, up to 4%, or 7%. 12 respondents, ie 28%, expect revenue growth between 5 and 9%, and 19% expect growth between 10 and 14%. The largest number of respondents expect revenue growth between 15 and 19%, 16 of them and 37%, respectively. Only three respondents expect revenue growth of more than 20%.

## 6. CONCLUSION

For the purposes of writing this paper, the authors conducted a study on restaurant owners in Croatia on the Adriatic coast and in the city of Zagreb. The aim of the paper was to investigate the attitudes of restaurant owners regarding the formation of prices in preparation for the 2022 tourist season. In Croatia, as in the rest of the European Union, inflation has prevailed since 2021. By lowering the VAT rate on fresh meat, fish, energy and hygiene items, efforts were made to mitigate the effects of inflation. The authors distributed questionnaires to restaurant owners to investigate how inflation affects business. Two hypotheses have been put forward. According to the main hypothesis, the amendments to the Value Added Tax Act will not affect the reduction of prices in restaurants. All respondents answered in the affirmative that the amendments to the Act will not affect their decision to increase prices in 2022, thus confirming hypothesis H1. According to hypothesis H 1.1. reducing VAT rates will alleviate price increases in restaurants. All respondents answered that reducing the VAT rate on certain items will not reduce the growth of prices, and therefore the above auxiliary hypothesis was not confirmed. One of the reasons for this may be the lack of labor in the summer months, which increases the cost of labor or a significant increase in the cost of food, energy, rent, which is greater than the planned price increases in restaurants. It should certainly be noted that the state was left without a significant share of budget revenues by lowering the VAT rate (according to the first estimates, around HRK 2 billion). However, the above does not necessarily mean that the state will be left without income. The competition of supermarkets in Croatia has done its thing. Unlike restaurants, supermarkets already reduced prices in March, unlike VAT. This may increase the consumption of products, and only over time will it be possible to calculate the effect of reducing VAT rates for the state budget.

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## ECOLOGICAL, ECONOMIC AND SOCIAL ASPECTS OF TEXTILE DYES

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### ABSTRACT

*The modern textile industry is facing the challenges of simultaneously integrating economic, political and social influences, culture, society, environment, environmentally friendly technologies and sustainable materials. The textile industry, despite its undeniable importance, is one of the anthropogenic activities that uses large amounts of dyes and pigments including enormous consumption of (drinking) water, fuels and chemicals, which often pollutes surface water bodies. The presence of different types of dyes and pigments used in finishing processes such as dyeing and printing can cause significant changes in the ecosystem. Nowadays, thanks to increased public awareness of environmental safety and health care, benign, non-toxic and sustainable products from biological resources are becoming increasingly popular in various spheres of life. Sustainability triad contains environmental sustainability, economic sustainability, and social sustainability; it is frequently characterized as “addressing the necessities of today without trading off the ability of future eras to meet their individual prerequisites”. This paper reviews the ecological, economic and social aspects of textile dyes with an emphasis on sustainability. Sustainability indicators from the economic aspect consist of economic performance, indirect economic impacts and the world market. Indicators of industrial sustainability in the context of ecology can be seen from the aspect of resource use, pollution caused and human behavior activities. Social indicators of the sustainability of natural dyes in the textile industry relate to adequate working conditions, equal opportunities, consumer health and safety, and human rights. In the context of economics, this article compares natural and synthetic dyes, in the context of environmental aspects enormous environmental pollutants and wastewater problems are discussed, and social aspects include issues related to human rights, adequate working conditions and (illegal) child labour in industries.*

**Keywords:** *Sustainability, Synthetic and natural dyes, Textile industry, Textile wastewater*

### 1. INTRODUCTION

The textile industry faces the challenges of simultaneously integrating economic, political and social influences, culture, community (society), environment, environmentally friendly technologies and sustainable materials [1]. Scientific fields that study the circular economy, i.e. the treatment of potentially harmful compounds used in various industries, analyze concepts such as "environmentally friendly", "sustainable development", "natural", "environmental protection", "eco-design", "zero waste", etc. However, they are difficult to apply and sometimes mislead about the actual environmental quality of a particular textile product. According to the analysis of scientists Chen and Burns [2], almost all textile products have a negative impact on

the environment. In addition, the impact of textile products on the environment is often neglected by both the textile industry and consumers. Globalization certainly has many advantages - increased intertwining of cultures, greater and faster transfer of information, a huge market that allows production, which, however, leads to accelerating trends and, consequently, to the emergence of "fast fashion". Such trends are shaping the modern textile industry [3]. However, social groups such as manufacturers, fashion designers, artists and government institutions have a deeper understanding of the product life cycle, creating a careful and critical attitude towards sustainable issues by integrating human well-being and green philosophy into the corporate identity; thereby influencing sustainable strategies adopted using natural dyes and natural textile fibers (wool, silk, cotton). Moreover, there is a ban on the use of carcinogenic and allergenic azo compounds in Europe, the US and India. Slow fashion movements and the principles of sustainable living influence the use of natural dyes in the textile industry [3, 4]. The process of change in which the use of resources means the direction of investment, the orientation of technical development and institutional changes in mutual harmony and enable the fulfillment of the needs and expectations of present and future generations defines sustainable development. The strength of this approach is in the common goal of environmental, economic, social, cultural, scientific and other activities [4]. According to the Brundtland Commission (1987), sustainability is often characterized as "addressing the needs of today without diminishing the ability of the future era to meet its individual preconditions", ie sustainability is an effective blend of current social, economic and environmental demands / problems [6]. According to the concept of sustainable production as defined by the Lowell Center for Sustainable Production, University of Massachusetts Lowell (LCSP), sustainable production involves the creation of goods and services using processes and systems that are non-polluting; conserving of energy and natural resources; economically viable; safe and healthful for employees, communities and consumers; and socially and creatively rewarding for all working people [7]. This definition is in line with the current understanding of sustainable development, as it emphasizes environmental protection, social and economic aspects of enterprise activities. At the same time, it is more operational because it highlights six main aspects of sustainable production, namely: use of energy and materials (resources), natural environment, social justice and community development, economic performance / efficiency, workers and products. By its nature, sustainability has a global dimension and most major challenges cannot be addressed in one isolated region of the world. The so-called "civilized" world relies heavily on "sale-of-goods" models, which have been driven by industrial competitiveness within the capitalist system for decades. This way of life is based on products that need to be designed, produced / manufactured, used, maintained, recycled and / or finally discarded. So far, although this model has achieved great efficiency in the production of goods, it has not taken into account the associated consumption of global resources, thus consuming an enormous amount of them. As global sustainability indicators clearly show, existing models of mass production of cheap goods and excessive consumption of short-term products cannot be supported indefinitely in the future. Sustainability consists of three aspects: environmental, economic and social. In the context of textile dyes, modern trends emphasize the sustainability of the use of natural dyes. Figure 1 shows the sustainability elements of natural dyes used in the textile industry, their driving power and objectives. According to the authors Elshahide et al. [1], the sustainability of the use of natural dyes can be achieved by linking economic, environmental and sociological aspects by increasing creativity in technology, capacity and productivity, ensuring the sustainability of the supply chain and improving the entrepreneurial spirit.

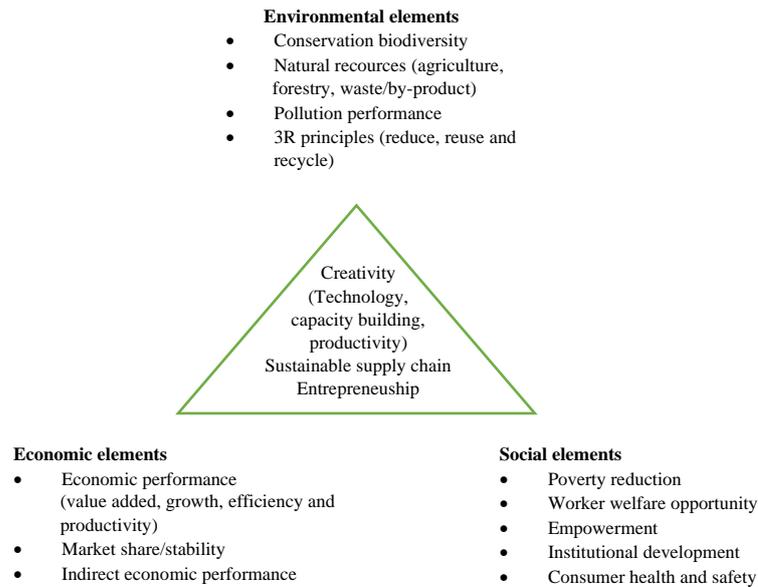


Figure 1: Elements of sustainable natural dyes used in textile industry [1]

In addition to the three main aspects of sustainability listed, the authors Arena et al. they also state the fourth element of the concept in achieving sustainability - technology. The modern industrialized world cannot survive without the continuous development of technology and evolution, and technology itself is part of sustainable development [5].

## 2. ECONOMIC ASPECTS OF TEXTILE DYES

Contributions dealing with economic sustainability contain the following components: 1. economic performance, 2. world market, 3. indirect economic impacts. Developing economies see huge potential in the field of textile dyes; these countries are rich in natural resources, which facilitates the production of synthetic and natural dyes in large quantities. China has become the largest textile dye market thanks to large textile production; the production of textile dyes is located mainly in Far East Asia. India's contribution to the world dye industry is more than 5%. Indonesian manufacturers of batik fabrics and other manufacturers in Southeast Asia are increasingly switching to natural dyes. Mainland China has become a major textile producer, accounting for almost 55% of total global fiber consumption and now accounting for 40-45% of world dye consumption [8]. Other reasons for the growth of the textile dye industry in countries such as India, China, South Africa, Brazil, etc. are the abundant natural resources used to produce textile dyes and cheap labor, which affects cheap dye production [9]. The global textile dye market is estimated at \$ 9.4 billion in 2018, and is projected to reach \$ 15.5 billion by 2026 [10]. For reasons of sustainability, developing countries are increasingly switching to the production and use of natural dyes instead of synthetic ones [9]. The basic condition for the development of the use of natural dyes outside the so-called "Green market" and their transition from the position of "handicrafts" or "home-made" towards on an industrial scale, is economic success, which requires a competitive cost structure as a fundamental precondition. Scientific studies conducted as part of the project of implementing natural dyes in industrial production, prove that the first steps have been taken - the basic conditions for the use of natural dyes in and outside the "Green markets" in the industry are as follows [11]: 1. Compliance with the required properties of color fastness, 2. Eligible costs of process engineering, 3. Reasonable price of natural dyes and dyeing processes, 4. Competitive price of naturally colored products, 5. Security of supply dyes.

### **3. ECOLOGICAL ASPECTS OF TEXTILE DYES**

Indicators of industrial sustainability in the means ecology can be viewed from the aspect of resource use, pollution caused and human behavior activities. The textile industry is one of the world's biggest polluters; it pollutes surface waters, uses enormous amounts of dyes and pigments including high consumption of (drinking) water in various processes, and consumes large amounts of fuels and chemicals [18]. The consequences of textile production on the environment are extremely important given that world textile consumption is estimated at more than 30 million tons per year [2]. Textile dyes can be very toxic and potentially carcinogenic, so they are associated with environmental degradation and various diseases in animals and humans [18]. 95% of wastewater from the textile industry comes from the dyeing process and 5% from the rinsing process [1]. Washing of dyed or printed textiles produces large amounts of wastewater - the annual waste is 280,000 tons of dyes and other chemical products such as phosphates, nitrates that directly affect aquatic flora and fauna and consequently human health. In addition to wastewater pollution, the textile industry also affects air pollution; release of particles and dust, nitrogen oxides and sulfur and volatile organic compounds.

#### **3.1. Natural and synthetic dyes in the context of economics and ecology**

The use of natural dyes, that have antibacterial, antifungal, antioxidant and antitumor properties on textile materials, is due to a growth of consumer awareness of the environmental impact of synthetic dyes causing water pollution, waste disposal problems and impossibility of biodegradability. Natural dyes can be obtained directly from agriculture, from waste / by-products from agriculture or forestry as well as from waste from the food and beverage industry [1]. The total use of natural dyes in the textile sector is only about 1% due to problems of technical nature and sustainability meaning their production and application. In addition, overuse of natural resources to obtain dyes can result in deforestation and threat to endangered species. For these reasons, the use of safe synthetic dyes is allowed and the use of natural dyes derived from endangered species is prohibited. The potentials of developing natural dyes to replace synthetic dyes are very large, however, the color characteristics given by natural dyes cannot be compared with the quality of dyes obtained by synthetic dyes and are not economical in processes [1]. An additional advantage of natural dyes is that waste from biomass obtained from the production of natural dyes can be reused in the form of products such as compost, biogas and feed, which supports the 3R principle (Reduce, Reuse, Recycle) [1]. Natural dyes generally have a low substantivity for the textile materials and are applied to textiles with the help of a mordant; usually metal salts, which have an affinity for both the dye and the fiber. Mordants are chemicals in the form of metal salts that are generally used to create affinity between fiber and pigment. During dyeing with natural dyes, a significant proportion of mordants remains unexhausted in the remaining dye bath, which can cause serious wastewater problems, so it is important to pay special attention to optimizing the concentration of metal ions. Given this issue, some scientists recommend the use of natural (bio) mordants instead of metal salts, such as plants with high levels of tannins; Prabhu and Teli [20] or plants that are hyperaccumulators of metals, i.e. aluminum compounds; Cunningham et al. [21]. However, B. Glover [19] in his work re-examines the views on natural and synthetic dyes from the perspective of textile dye workers, where it is more important to look at dyeing in general than to concentrate exclusively on the source of dye. The author's assumption is that it is not the source of the dye that determines whether the dye is environmentally good or bad. The attitudes and methods adopted by those involved in the production of dyes are the ones that determine the above. The "naturally good" argument suggests that synthetic chemistry is a "necessary evil", but the fact is that both natural and synthetic products can be carcinogenic; workers involved in the cultivation and harvesting of natural products may, like those working with chemical products could also be exposed to harmful working conditions such as pesticides,

unsafe equipment and social vulnerability. There are problems with all sources of dyes in the application, which include high energy and water consumption. Thus, when comparing synthetic dyes with natural dyes, the following should be taken into account: Natural dyes require synthetically produced mordants whose production can increase environmental problems such as pollution. Therefore, in order for the natural dye industry to gain wide acceptance, the same production method, procedures and quality adopted by the synthetic dye industry should be followed. The cost of dyeing with natural plant dyes is on average higher than with synthetic ones. Commercial dyeing of textiles requires a full range of shades, a certain brilliance, brightness, hues, uniformity without the property of metamerism. Also, it is necessary to satisfy the resistance to light of all hues and on every type of textile material. It is important to emphasize the misconception that natural dyes are safe, and only synthetic products are dangerous; society similarly ignores the potential harmful effects of natural products. Thus, whether of synthetic or natural origin, the problem is not caused by the actual source of the product, but by the chemical structure of the molecule and the biological impact [19]. As noted, compared to synthetic dyes, exhaustion of natural dyes is more difficult, natural dyes give pale hues and have poorer resistance to light and washing. It is possible to dye natural fibers with natural dye, but with the help of mordants. Important synthetic fibers such as polyester or acrylic cannot be dyed with natural dyes. Calculations show that it takes about 400 kg of cultivated dyeing plant to achieve the same depth of dyeing that is obtained with 1 kg of synthetic dye on wool or cotton at a cost ratio of about 100: 1. Furthermore, if the world demand for dyed cotton were dyed with plant natural dyes rather than synthetic ones, cultivation would require approximately 30% of the world's agricultural land; this is 13 times the area currently used for cotton growing, and no account has been taken of how long it would take for other textile fibers, paper and leather industries to dye in the same way [22]. Prof. Ana Sutlović emphasizes that natural dyes are not necessarily eco-friendly: "The use of natural dyes without caring for plant habitats, awareness of the possible harmfulness of metal salts used as mordants and like, does not provide an "eco" premise and imposes the need for scientific and artistic research [23]. "H. Křížová [24] in her paper also notes that the use of metal mordants with natural dyes is not in line with the concept of environmental friendliness of natural dyes. Only certain natural dyes and pigments (e.g. indigo, alizarin dyes, tannins, flavonoids) can compete with synthetic dyes in quality and stability. Seasonal availability of natural resources, laborious process of processing and extraction of dyes, the need to process and possibly transportation of large amounts of plant material and subsequent waste problems, inefficient exhaustion of dyes from baths, soil and water pollution with metal wetlands, unstable colors and often poor consistency together with high costs are the main reasons hindering the wider use of natural dyes in textile dyeing. In short: the implementation of existing methods of production of natural dyes and their use in the textile dyeing industry on a global scale would lead to an ecological catastrophe. At the level of today's scientific development and world textile production, natural dyes can replace only a part of the total consumption of textile dyes, i.e. complement synthetic dyes and are a viable option only for small applications - for small industries, manufactories, hobby groups and craftsmen [11, 24]. In recent times, most commercial dyes and export textile companies have begun to reconsider the maximum possibilities of using natural dyes for dyeing and printing of different textiles for the target market. However, relevant scientific research and their results on standardization of dyeing methods, dyeing process variables, dyeing kinetics and compatibility testing of selected natural dyes have become very important, but data on this are still insufficient.

### **3.2. Textile dyehouse wastewater**

Environmental pollution and consequent problems in developed and developing countries are due not only to one, but to a number of factors such as the misuse of natural resources,

inefficient legislation and lack of environmental awareness. Every industrial process is characterized by the use of input materials (raw materials, water, energy), which are subjected to transformation that leads to products, by-products and waste. Waste produced at all stages of different types of human activity, and in the context of composition and volume, differ depending on the methods of consumption and production practices. Hazardous waste, which is mainly produced by industry, is of particular concern because when disposed incorrectly it becomes a serious threat to the environment and thus to human health. Wastewater contains heavy metals such as chromium, arsenic, copper and zinc [18, 24]. Untreated wastewater discharged into the environment affects every component of the environment, i.e. soil, water, air and human health [27]. Consequences of pollution caused by textile factory are shown in figure 1 and 2. Severe degradability in the aerobic environment, especially in a conventional treatment plant, is responsible for the bioaccumulation of dyes and metals in sediments and soil and their transport to public water supply systems and the human body [1]. Due to the discharge of untreated wastewater into surface waters, which usually account for 80% of the total emissions produced by this industry, research into new alternative procedures for the disposal of different types of industrial waste remains a challenge in combating pollution. The textile industry is the largest consumer of dyes (2/3 of the market) and a large consumer of water with an average of 200 L of water per 1 kg of fiber [25]. Difficulties in removing dyes from textile wastewater and the environment can be attributed to the high stability of these compounds, as they are resistant to biodegradation to meet the demands of the consumer market with regard to the durability of dyes in fibers – consequently it is understood that they also remain in the environment for a long time. Regardless of the characteristics of the selected dyes, the final process of all dyeing processes involves washing in baths to remove excess dyes that have not fixed on the fiber in previous stages. Dyeing wastewater is often discharged into nearby waterways, agricultural land, irrigation canals, and eventually affects surface waters such as rivers, seas, etc. [18]. Therefore, they can cause changes in the physical, chemical and biological nature of the aquatic atmosphere due to constant changes in turbidity, odor, noise, temperature, pH, which is detrimental to the health of livestock, fish, wildlife and biodiversity. In addition, surface water pollution can cause changes in the biological cycle of aquatic biota, particularly affecting photosynthesis and oxygenation processes of surface waters, e.g. by interfering with the passage of sunlight through water [26]. Complex metallic dyes by releasing cations of heavy metals into the aquatic environment can absorb fish gills because their negative charge allows their accumulation in a particular tissue. Thus, they can reach human organs through the food chain, causing a number of serious pathologies [22]. In general, diseases to which textile dyes contribute range from dermatitis to central nervous system disorders or may be associated with the substitution of enzymatic cofactors resulting in inactivity of the enzymes themselves. Acute toxicity of textile dyes is caused by oral ingestion and inhalation, especially exposure to dust, which causes skin and eye irritation. Workers working in the production of reactive dyes can get contact dermatitis, allergic conjunctivitis, rhinitis, asthma or other allergic reactions and other water-borne diseases. Removing dye from dye-containing wastewater is the first and foremost concern, but the point of dye degradation is not only to remove the dye, but also to eliminate, or significantly reduce, toxicity (detoxification process) [25].

*Figure following on the next page*



*Figure 2: The photo taken in May of 2019 shows the water of the Louhajang river turned red due to pollution allegedly by a textile mill in Khudirampur village of Tangail. Photo: Mirza Shakil [28]*



*Figure 3: The photo taken in April of 2010 shows the colour of the water the same river to be dark blue as the pollution has been going on for years. Photo: Mirza Shakil [28]*

#### **4. SOCIAL ASPECTS OF TEXTILE DYES**

Social indicators of the sustainability of natural dyes in the textile industry relate to adequate working conditions, equal opportunities, coherence with social policies, community relations, consumer health and safety, and human rights [1]. Social sustainability highlights six main sub-dimensions: 1. work practices and appropriate working conditions, 2. diversity and equal opportunities 3. community relations, 4. respect for social policy, 5. health and safety of consumers, 6. human rights. "Adequate working conditions" is the most cited sub-dimension that shows the relevance of the industry in sustainability. In addition to the dangers that occur in the textile industry such as mechanical, physical, chemical, ergonomic, physiological hazards, biological agent hazards, ergonomic and psychosocial hazards, there are additional problems such as injustices associated with overtime, wages and working conditions. The textile sector is of great importance, for example, to the Indian economy. It is estimated that one in six families relies on the textile industry. Problems related to wages in the textile industry are as follows: minimum wages, high pressure on workers, verbal abuse, overtime, job insecurity, factory rules and regulations, trade union (many factories do not have it). In their study, scientists Kakuli and Risberg [12] state that it is normal for workers in the Bangladeshi textile industry to work 76 hours a week, which exceeds the limits. The 2006 Labor Law also states that a worker should be paid within 7 working days of completing work, but a large

proportion of factories do not comply. Scholars Yunus and Yamagata [13] state that the Wages Committee is considering several issues to prepare a decent level of minimum wage; such as basic living standards, cost of living, cost of production, cost of goods produced, inflation rates, types of business, business ability and socio-economic status. However, the calculation of the minimum wage often does not reflect reality.

#### 4.1. Child labour

Child labour is banned by law in most countries, but is still prevalent in some of the world's poorest parts. According to the International Labor Organization (ILO), around 260 million children are employed worldwide [14]. Of these, the ILO estimates that 170 million are involved in child labor, accounting for almost 11% of the child population as a whole, where children's human rights, security and educational opportunities are exploited. Children in hazardous jobs that directly endanger their health, safety and moral development make up more than half of all child workers, a total of 85 million. The UN Convention on the Rights of the Child states that all work performed by children under the age of 15 and all precarious work performed by children under the age of 18 is illegal. That is, the UN defines child labour as "work for which the child is either too young - work performed below the required minimum age, or work that is considered unacceptable to children due to its harmful nature or conditions and is prohibited." The emergence of "fast fashion" has led companies to find cheaper sources of labor available in many countries (developing countries) where textile and clothing production takes place. Sofie Ovaa, global coordinator of the Stop Child Labor campaign, states: "In countries like India and Bangladesh, there are many girls who are willing to work for very low prices and are easily brought into these industries under false promises of decent wages." A recent report by the Center for Research on Multinational Corporations (SOMO) and the ICN (India Committee of the Netherlands) found that parents in southern India in poor rural areas are persuaded to send their daughters to spinning mills with promises for a well-paid job, comfortable accommodation, three nutritious meals a day and training and education opportunities, as well as a one-time payment at the end of three years. Their field research shows that in reality they work under appalling conditions that represent modern-day slavery and the worst forms of child labor. Child labour is a particular problem in the fashion industry, as much of the supply chain requires a low-skilled workforce, and some tasks are even better suited to children than adults. There are no oversight or social control mechanisms, no unions to help them agree on better working conditions. Employers avoid this because the fashion supply chain is extremely complex and it is difficult for companies to control every stage of production, which allows them to employ children without the knowledge of big brands and consumers [15]. Children-workers working in informal textile factory in Bangladesh are shown in figure 4 and 5 [16].



*Figure 4: Girl removes extra stitches from jeans, Photo: Claudio Montesano Casillas/REX Shutterstock [16]*



*Figure 5: An informal garment factory in Dhaka, Photo: Claudio Montesano Casillas/REX Shutterstock [16]*

Brands that truly implement sustainable and ethical practices are transparent and provide details about the factory, operating conditions and production process. The ethical factor of a fashion brand can be assessed by checking the certification mark on clothing such as the following: Fair Wear Foundation, Fair Trade Certified, Ethical Trading Initiative or Certified B Corporation. These organizations protect the rights of workers in global supply chains and ensure that child labor is not used. Furthermore, they ensure that workers are paid fairly for their work, often above current market rates, and that they work in safe conditions [17].

## **5. CONCLUSION**

Globalization and rapid dissemination of information and trends, the possibilities of modern technologies and society's needs for certain (textile) products affect the faster production of textiles, and thus the use of large amounts of harmful compounds and wastewater production from textile industries. At the same time, in modern (digital) society we are witnessing excessive production of textile and other products with regard to the needs of consumers whose habits are determined by various influences, but at the same time the society is becoming more aware of the dangers of irrational production and consumption of (often unnecessary) products, and thus human health. There is a kind of paradox: at the same time, society is moving towards the trend of speed / "fast fashion", rapid dissemination of information and consequently rapid production and higher amounts of toxic waste compounds in the environment, while becoming aware of the importance of coexistence with nature. Therefore, the principles of sustainable living, environmentally friendly technologies and sustainable materials affect the wider community. Sustainability defines the harmony between three components: economy, environment and social values. It is a complex idea that has a global dimension as it includes products sold on the basis of the 'sustainable / environmentally friendly' motive, which aims at ethical values and a sense of responsibility. The target group responding to this type of message is quite small, while marketing concepts that increase personal emotional benefits are widespread and accepted. Therefore, before presenting the concept of sustainability, it is necessary to study / change the causes, i.e. the way of thinking of a society that, unfortunately, is still based on the capitalist system. The current way of life of our civilization is based on technology that should be viewed as an inevitable component of the world we live in, that is, the fourth dimension of the same concept of sustainability. From this point of view, technology influences and interacts with the economic dimension (e.g. allows new business solutions), with the environment (e.g. provides solutions for nature and resource conservation) and with society (e.g. supports a new way of life). In the context of sustainability within the textile industry, i.e. the process of dyeing and printing, natural dyes are more environmentally friendly than synthetic ones.

The use of new dyeing products and the application of new dyeing processes create additional challenges for the company, in terms of infrastructure and quality control, as synthetic dyes are unlikely to be completely replaced; additionally, natural dyes will be used. Many efforts are currently being made to further optimize the current linear system. The transition to a circular economy requires fundamental systemic changes - not only technological innovation to increase efficiency and reduce environmental impact, but deep sociological innovation and progress in terms of working conditions, equality and changes in business models are needed. A more sustainable approach to industrial production needs to be combined with appropriate policies, such as laws and regulations, established by governments, and with new human awareness, based on individual and social responsibility.

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## STRUCTURE OF THE INVESTMENT PORTFOLIO IN INSURANCE COMPANIES

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### **ABSTRACT**

*The significance of the investment and the creation of the investment portfolio origins from the nature of insurance business. Investment of insurance companies is the most important asset item and investment portfolio is created by collecting of funds from insurance contracts. When structuring investment portfolio, it is important to assure optimal balance of return and risk and base it on the principals of security, liquidity, profitability, and stability. The main goal of an insurance company is to create stable investment portfolio that by its volume, structure and quality will assure enough funds to cover risks from insurance business. Based on the risk assessment of investment, portfolio placements can be considered as high-risk placements, medium risk placements and low risk placements. Insurance companies invest in properties and rights, securities and shares, loans, deposits in banks and banks current accounts or cash, all in accordance with regulatory limits for capital and risk reserves (life and non- life insurance risk reserves). Regulatory environment of insurance companies sets limitation for investments and in that way defines investment portfolio. Development of real estate, capital and financial market also has significant role in the creation of the investment portfolio of insurance companies. This paper will research structure of investment portfolios in insurance companies in Bosnia and Herzegovina, Croatia, Slovenia and Serbia as well as regulatory requirements regarding investments that must be met by the insurance companies in those markets in order to comply with Solvency regime in force.*

**Keywords:** *insurance company, insurance market, investment portfolio, Solvency I, Solvency II*

### **1. INTRODUCTION**

Insurance companies are important part of the financial system of each county and important participants in financial market. Investments and importance of creation of investment portfolio result from the nature of insurance companies' operations. Investments represent the most important item in asset of insurance companies and investment portfolio is created from funds collected from insurance premium based on insurance contracts. When creating investment portfolio, it is important to assure optimum ratio of risk and return on investments and all in accordance with principles of security, liquidity, profitability, and stability. Creation of the investment portfolio in insurance companies is regulated by local regulatory requirements as well as established risk management system in each insurance company. Insurance markets of Bosnia and Herzegovina, Croatia, Slovenia and Serbia are different from the regulatory point of view and insurance companies operate under different Solvency regime. The purpose of this paper is to present regulatory requirements in the mentioned marked as well as investment portfolio structure in those markets.

### **2. INVESTMENT PORTFOLIO AND SIGNIFICANCE OF ITS DIVERSIFICATION**

Investment portfolio is cluster of assets of an investor. Asset can be classified in wide ranges of investments such as shares, bonds, real estates, merchandize etc. Investors make two types of decisions while creating investment portfolio. By making decision on allocation, they choose type of assets and then choose subgroups under those types of assets using top-down or bottom-up approach. (Bodie, Z. Kane, A., Marcus, A. J. 2006).

Portfolio diversification refers to choosing different classes of assets with the objective of maximizing the returns and minimize the risk profile. An investment pyramid, or risk pyramid, is a portfolio strategy that allocates assets according to the relative risk levels of those investments. The risk of an investment is defined in this strategy by the variance of the investment return, or the likelihood the investment will decrease in value to a large degree. The bottom and widest part of the pyramid is comprised of low-risk investments, the mid-portion is composed of growth investments, and the smallest part at the top is allocated to speculative investments. There is no diversification type which is suitable for every company. In general, all investments depend on the willing or possibility to be exposed to risk as high as possible due to preferences and current financial situation.

### 3. INSURANCE COMPANIES AND THEIR SIGNIFICANCE AS INVESTORS

Insurance is based on the principle of economic co-operation. It is a pooling of risks and spreading over a number of persons. It is the basic principle of insurance. The premium is collected from a number of persons, and an insurance fund is created. From this fund, the compensation is given to the contributors who suffer contingent loss. In modern days, it is now a specialized branch of commerce. Today, insurance covers a wide range of risks. It now closely related to the day-to-day life of individuals as well as of the nation. It also plays a prominent role in the national economy. In every moment, insurance company must have possibility to respond to clients' needs and also has different types of investments in order to achieve as much as benefits from those. Investments are in general regulated by internal deeds as well as by regulatory frame established from supervisory bodies. Architecture of investment portfolio must be based on principles of liquidity and solvency i.e insurance company has to be able to assure fulfillment of its liabilities as well as to assure adequate income and dividend for the owner. Following components influence the structure of investment portfolio of an insurance company:

- 1) propensity of insurance company to take the risk,
- 2) regulatory frame under which insurance company operates,
- 3) 3.development of financial, capital and real-estate market in which insurance company operate.

If taking in consideration level of risk, investments (placements) can be divided into three groups: high risk placements, medium risk placements and low risk placements.

Level of risk	Type of placement
<b>low risk placements</b>	Bank deposit
	State bonds
	Long term bonds from public companies
<b>medium risk placements</b>	Company bonds
	Municipal bonds
<b>High risk placements</b>	Shares
	Company bonds with no rating
	Derivatives

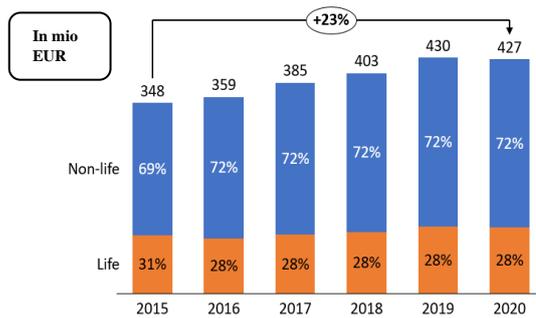
*Table 1: Type of placement divided by the level of risk taken  
 (Source: Šain, Ž., Taso E. 2015)*

### 4. INVESTMENT PORTFOLIO REGULATORY FRAME AND STRUCTURE IN BOSNIA AND HERZEGOVINA, CROATIA, SLOVENIA AND SERBIA

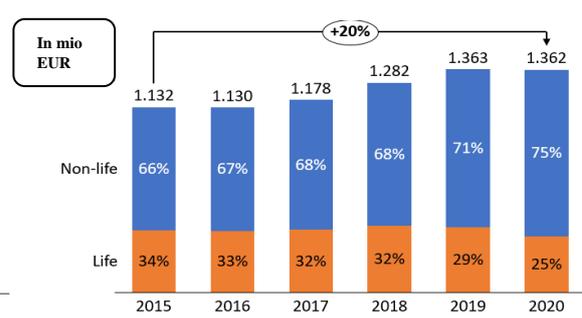
#### 4.1. Insurance market in Bosnia and Herzegovina, Croatia, Slovenia and Serbia

Volume of premium in Bosnia and Herzegovina, Croatia, Slovenia and Serbia market grew in last five years and in that way increased a potential of insurance companies to invest.

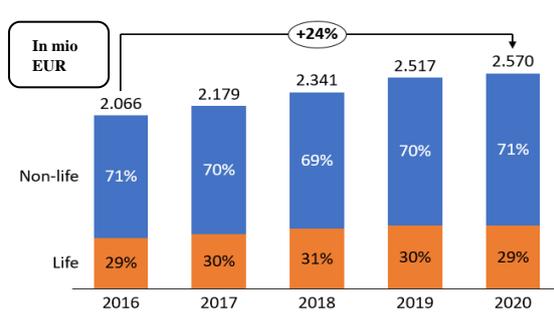
## Bosnia and Herzegovina



## Croatia



## Slovenia



## Serbia

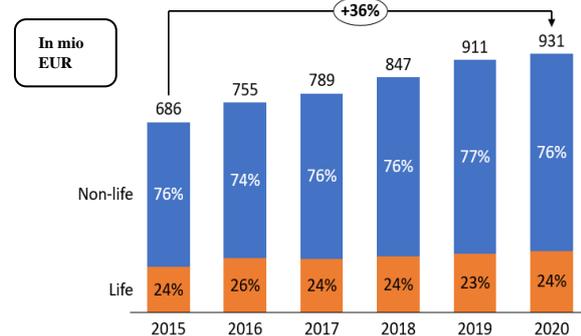


Chart 1: Volume of premium Insurance market in Bosnia and Herzegovina, Croatia, Slovenia and Serbia  
(Source: Author)

## 4.2. Regulatory frame for creation of investment portfolio in Bosnia and Herzegovina, Croatia, Slovenia and Serbia

### 4.2.1. Solvency I vs. Solvency II regime

The adoption of the first non-life insurance Directive (Directive 73/239/EEC) in 1973 and of the first life assurance Directive (Directive 79/267/EEC) six years later were the first steps towards harmonization of insurance supervision in Europe. Implementation of the Directives resulted in harmonized solvency requirements in the EU Member States. The supervisory regime Solvency I was perfected by the second and third Directives (Directives 88/357/EEC, 90/619/EEC, 92/49/EEC and 92/96/EEC), which inter alia implemented the freedom to provide services in the insurance sector. Solvency I has established more realistic minimum capital requirements, but still it does not reflect the true risk faced by insurance companies. Solvency II brought the harmonization of asset and liabilities valuation techniques across EU. The new directive, called Solvency II, was voted in April 2009 and came into force on 1 January 2016. The objective was to better adapt the shareholders' equity of insurance companies to the risks they incur. In November 2018, the European Commission launched a consultation to amend Solvency II. After consultation, the European Insurance Authority "EIOPA" proposed a new draft of Solvency II for June 2020. Due to the health crisis, this reform was postponed to a later date. Solvency II concept consists of three Pillars: quantitative requirements, qualitative requirements and market discipline. Pillar 1 sets out quantitative requirements, including the rules to value assets and liabilities (in particular, technical provisions), to calculate capital requirements and to identify eligible own funds to cover those requirements. Pillar 2 sets out requirements for risk management, governance, as well as the details of the supervisory process with competent authorities; this will ensure that the regulatory framework is combined with each undertaking's own risk-management system and informs business decisions. Pillar 3

addresses transparency, reporting to supervisory authorities and disclosure to the public, thereby enhancing market discipline and increasing comparability, leading to more competition. (<https://ec.europa.eu>)

#### *4.2.2. Regulatory frame for creation and valuation of investment portfolio in Bosnia and Herzegovina, Croatia, Slovenia and Serbia*

Croatia and Slovenia as part of EU implemented Solvency II. Serbia and Bosnia and Herzegovina are not part of the EU yet and Solvency I regime is still in force but many of the market participants are subsidiaries of the EU company and internally have own procedures in compliance with Solvency II. In Serbia there is a Strategy for implementation of Solvency II dating from July 2016 which anticipated Solvency II regime from 2021. but that didn't happen. National Bank of Serbia conducted stress test for insurance market and concluded that insurance company can transfer to Solvency II regime. It has been concluded that there is an adequate degree of readiness and capacity to implement Solvency II in this segment. The analysis of overall readiness of undertakings to implement Solvency II established that the insurance sector in Serbia is considerably focused on implementing Solvency II, that the management of undertakings is, as a rule, involved in its implementation, and that most undertakings believe Solvency II will positively impact their operations. However, undertakings consider that their employees have insufficient knowledge about Solvency II and that there is a substantial need to improve capacities, with the expected help of parent undertakings from the EU and the NBS. Some undertakings that are part of EU groups and thus already have some experience in implementing Solvency II underscore the complexity of Pillar 1, which relates to quantitative requirements. Based on the conducted analyses, it was established that there are solid preconditions for Solvency II implementation in Serbia. An important test of readiness of the Serbian insurance sector to implement Solvency II is the quantitative impact study envisaged as part of the second stage of the Strategy, which the NBS is currently preparing. In Bosnia and Herzegovina, in Republic of Srpska entity there is Strategic frame for preparation for transition to regulatory frame based on Solvency II which exists as official document dating from November 2018, while in Federation part there is no such document. Regulators in Bosnia and Herzegovina didn't conduct stress tests. Regulatory frame for creation and valuation of investment portfolio in Bosnia and Herzegovina, Croatia, Slovenia and Serbia is prescribed by regulator(s) of each country.

*Table following on the next page*

Description	Investments		Regulatory determined limits		Solvency Regime	
	FBIH	RS	FBIH	RS	FBIH	RS
<b>Bosnia and Herzegovina</b>	<p><b>Investing:</b> Law on insurance FBIH (Official Gazette FBIH 23/17 and 103/21), Art. 88-98; Rulebook on amount and modus of funds investing (Official Gazette FBIH 95/19).  <b>Valuation:</b> Law on Accounting and Audit FBIH (Official Gazette FBIH15/2021); Instruction for valuation of on balance and off-balance positions (Official Gazette FBIH 2/18 i 95/19)</p>	<p><b>Investing:</b> Law on insurance RS (Official Gazette RS 17/05, 1/06, 64/06, 74/10,47/14 and 58/19), Art. 56-58; Instruction for valuation of on balance and off- balance positions (Official Gazette RS 117/20, 127/20 and 23/21).  <b>Valuation:</b> Law on Accounting and Audit RS (Official Gazette RS 94/2015 and 78/2020)</p>	Yes	Yes	Solvency I	Solvency I
<b>Croatia</b>	<p><b>Investing:</b> Law on insurance (Official Gazette 30/15, 112/18, 63/20, 133/20), Art. 159 -162, <b>Valuation:</b> for the Solvency purpose in accordance with Art. 105-120 all in compliance with Art. 75-86 of Directive 2009/138/EZ (Solvency II) as well as with Commission Delegated Regulation 2015/35 (Chapter I. and II.)</p>		No		Solvency II	
<b>Slovenia</b>	<p><b>Investing and valuation:</b> Insurance Act, ZZavar-1. Union legislation in the field of insurance regulation that is directly applicable within the territory of Slovenia: Commission Delegated Regulation (EU) 2015/35 of 10 October 2014 supplementing Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II)</p>		No		Solvency II	
<b>Serbia</b>	<p><b>Investing:</b> Law on insurance (Official Gazette RS 139/2014 and 44/2021) Article. 131 -137; Decision on investment of insurance funds (Official Gazette RS 55/2015, 111/2017 and 149/2020).  <b>Valuation:</b> Law on Accounting (Official Gazette RS 73/2019)</p>		Yes		Solvency I	

*Table 2: Regulatory frame for creation and valuation of investment portfolio in Bosnia and Herzegovina, Croatia, Slovenia and Serbia  
 (Source: Author)*

### 4.3. Structure of the investment portfolio in Bosnia and Herzegovina, Croatia, Slovenia and Serbia

In following charts are Bosnia and Herzegovina, Croatia, Slovenia and Serbia insurance companies' investments divided into: investment properties, equities, debt securities, deposits and loans and other investments.

#### 4.3.1. Bosnia and Herzegovina

Bosnia and Herzegovina insurance companies primarily invest in deposits and loans while debt instruments are also significant part of investments as well (increase in structure of investments in debt securities for 52% in period 2015-2020). Decrease in interest rates in deposits forced insurers to find better source of income.

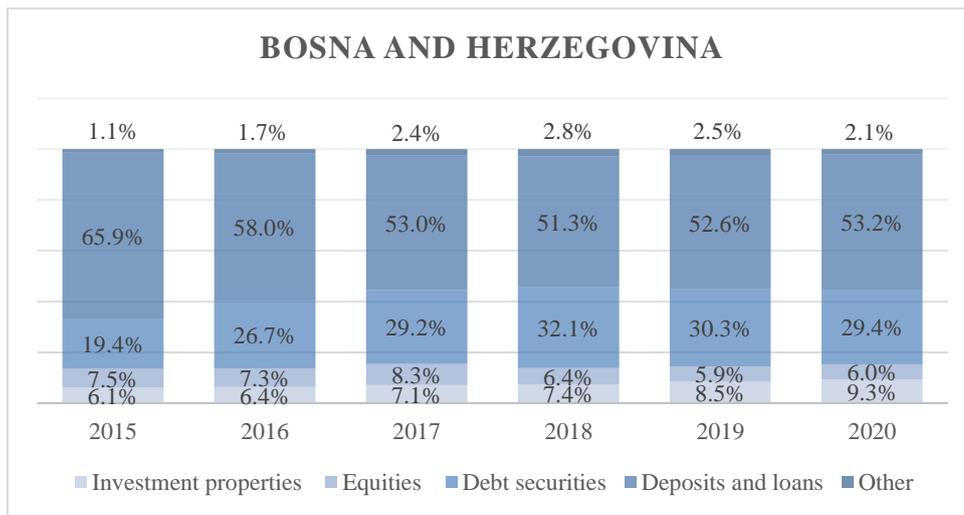


Chart 2: Structure of investment portfolio of insurance companies in Bosnia and Herzegovina  
 (Source: Author)

#### 4.3.2. Croatia

In Croatia investment portfolio of insurance companies is in debt instruments and structure did not have any significant turbulation in period 2015-2020.

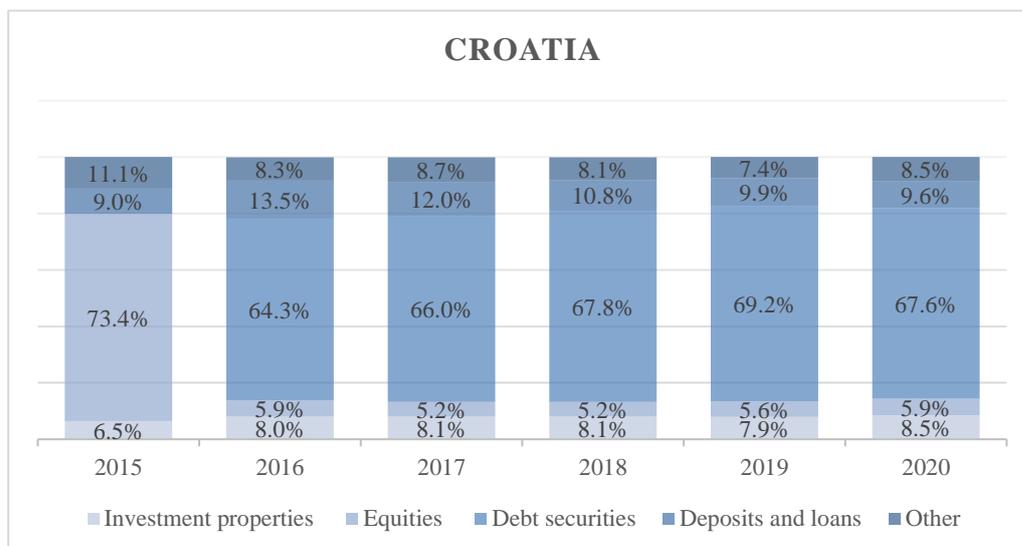


Chart 3: Structure of investment portfolio of insurance companies in Croatia  
 (Source: Author)

#### 4.3.3. Slovenia<sup>1</sup>

Slovenian insurance companies primarily invest in debt instruments and equities which in 2020. Jointly are 93,7% of total volume (Increase in structure for 4,2% in period 2016-2020). Structure did not have any significant turbulation in period 2016-2020.

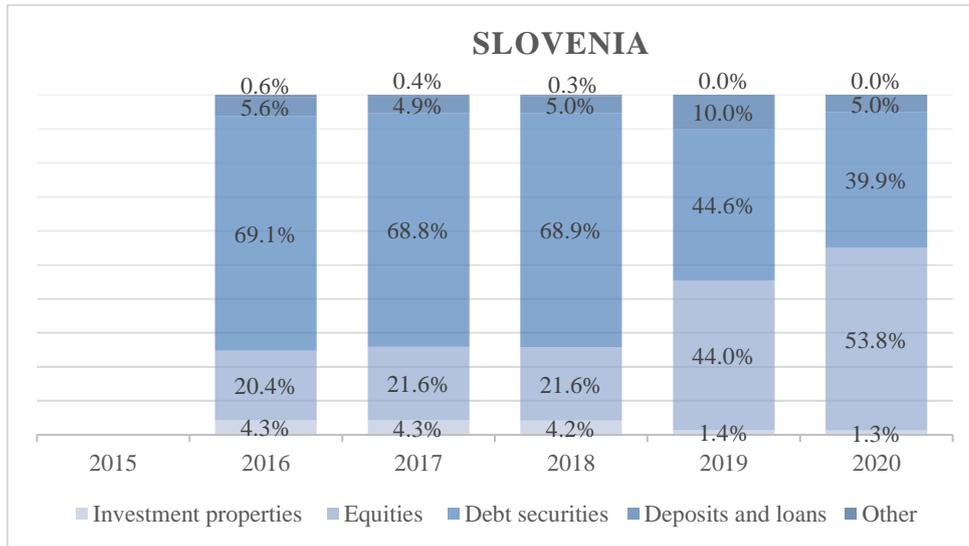


Chart 4: Structure of investment portfolio of insurance companies in Slovenia  
 (Source: Author)

#### 4.3.4. Serbia

In Serbia investment portfolio of insurance companies is mainly in debt instruments and structure did not have any significant turbulation in period 2015-2020 meaning that debt instruments remained major part of investment portfolio.

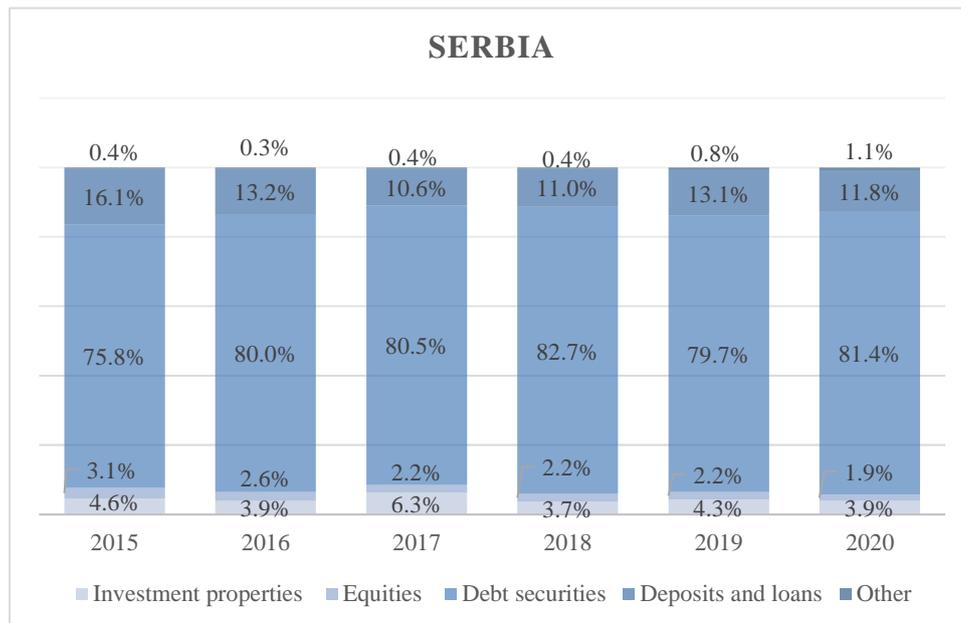


Chart 5: Structure of investment portfolio of insurance companies in Serbia  
 (Source: Author)

<sup>1</sup> No data for Slovenia for 2015 publicly available

## 5. CONCLUSION

Investment portfolio of insurance companies from insurance premium funds is used for covering of risks and it is major part of assets of those companies. It is limited, by its volume and structure by regulatory requirements and/or by opportunities on financial, capital and real estate markets. Also, internal risk policies can have significant impact on portfolio structure. Regulatory frame in Bosnia and Herzegovina and Serbia limiting the investing in certain types of assets doesn't result in more diversified investment portfolio on aggregated level than in Croatia and Slovenia which as part of European Union have Solvency II regime and no such limits. So, different regulation of insurance companies on aggregated level doesn't lead to diversification. However, as profit driven, insurance companies strive to maximize their profit from return on investments taking into consideration optimum risk and return balance and basic investment principles. As such, in order to further investigate the structure of investment portfolio, it should be additionally explored through profit dimension and risk management dimension to see if security, stability and liquidity on one side or profitability on the other side are main drivers of the investment activities when it comes to insurance companies.

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## THE IMPORTANCE OF DECISION MAKING PROCESS IN THE PUBLIC SECTOR OF KOSOVO

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### **ABSTRACT**

*Decision making is characterized by quick actions of managers and their organizers. In this sense, the form of decision-making is related to the implementation of the policy as a result of the dynamic functioning in the existing conditions for its creation. Managing an organization is a very sensitive issue which involves many aspects. The most important aspect of good management is to do the things that are needed and in the right places in order to achieve a high effectiveness desired by all management staff. To achieve this, a good manager must possess the ability to visualize the future development of the sector for which he is in charge. Motivation, proper staff management, setting goals to be achieved and proper rewarding of people are things that need to be implemented. Decision-making in the public administration of Kosovo is a very debated topic and sometimes a little understood and confusing on the vocabulary. Sometimes strategic planning, policy development and decision making are applied in a discriminatory, unchanging way and in the absence of consensus in the decision. It is generally accepted that the decision involves a choice between alternative course of action. The way a decision is made depends on whether strategic, tactical, operational or routine decisions need to be made. Routine and operational decisions are usually individual, while strategic and tactical decisions are often made in groups. Based on this, problems appear mainly in individual decisions, while the most complex decisions are solved mainly through group decision making. Given the complex work in public administration as well as the practices applied in many countries, including Kosovo, the decision-making process depends on: the type of decision to be made, the knowledge and skills of the decision-maker, the time available for making a decision, and the type and process of making a decision. This topic will be discussed in more depth on the aspects mentioned above during the presentation of the survey results with 610 public administration employees of Kosovo.*

**Keywords:** *Public sector, human resource management, good management*

### **1. INTRODUCTION**

There is a need in most developing countries, including the Republic of Kosovo to raise awareness of the management of public administrators. Many people still think in terms of dealing with files, implementation of the assigned tasks and the implementation of the rules. Human relations are a very important element for the proper functioning of the institution making it possible to understand the concepts of human behavior and this two main directions

- First, the behavior of individuals in relation to us and in relation to each other,
- Second, our behavior in relation to others.

Making decisions is considered to be a responsibility of the leaders or politicians and special organizations. The idea that needs to be promoted is that all administrators are actually decision makers at different levels. Collectively seen, administrators have a huge impact on decisions and decision-making.

Public administrators who are aware of the goals and objectives of their activity is of great importance in order to improve their sensitivity to the quality of decisions and their outcomes. In the meantime, only a few public guidelines can be offered to help the public administration in carrying out its functional tasks. The ability of decision-making is a skill which improves during the experience. Unlike the decisions made in private life, based on intuition, decisions made in the public sector cannot be based only on intuition, depending on the level they reach the interests of greater or smaller group of people. Decisions of administrators in the public sector are by hierarchy. Decisions at the lowest levels can be structured to more options. Administrators on higher functions make decisions with a very high discretion. Anyway, there are links between levels of decision-making and the nature of the scope of the decision which, however, in some cases can be different. Promotion of interaction between different levels in terms of goals and objectives, in place of cases and transactions is crucial to improve the overall process of decision making. The decisions made by the administrator in higher levels, almost always include inter-sectoral and inter-organizational cooperation. Agreements to promote cooperation can be extremely difficult, like, for example, at various subjects where conflicting interests are involved. The need to act within the frames of the decisive parameters becomes an imperative. Finally, several administrators have a great impact in making decisions. The reasons for not doing it are different: a reason not to make the wrong decision – the administrator needs to have special skills and techniques. Many developing countries continue to struggle with this problem.

## **2. PURPOSE OF THE RESEARCH**

Today, more than ever, the need for efficient use of human resource management in the public sector is emphasized. Efficient results-oriented administration requires public agencies to develop human resource management capacities according to the central management process, which integrates all functions and orients them in advancing the strategic agenda. The research in this paper is the role of management in the public sector in creating values in the decision-making process. The purpose of the research is to create a single theoretical-applied basis to understand and use the concept of management in the public sector in the decision-making process. This research will contribute to increasing effective management in the public sector. The research tasks are as follows:

- 1) Explain the dimensions of strategic decisions and the way of decision making with special reference to individual and team decision making in the public sector;
- 2) Determine which decision-making model is best to be applied in public organizations and explain the strategic analysis in the decision-making process in the public sector;
- 3) To look at the results of research in the field of decision-making process in the public sector in the Republic of Kosovo.

## **3. METHODOLOGY**

The collection, analysis and presentation of available data and information of this scientific paper will be done using a logical and science-based approach. The field research method will be applied electronically empirically to the sample of civil servants who are from central and local administrations who will test the level of development of the decision-making concept in the process of determining institutional values in the institutions where they work.

## **4. THE MANNER OF DECISION MAKING IN THE PUBLIC SECTOR OF KOSOVO**

The hierarchy of decision-making in the public sector the Republic of Kosovo consists of three levels: organizational, managerial or sectorial and functional area. The level of organization is at the top of the hierarchy and it consists of the board of directors, senior managers and administrative staff.

These managers seek to achieve financial results as well as to address some nonfinancial problems, such as: increase of the image and social responsibility. In the broader meaning of the word the strategy of organizational level mirrors the interests of the shareholders and the society as a whole. In the large public organizations, managers at level of organization determine the activities in which the organization will be involved. They also decide on the objectives and formulate strategy that will manage these activities. The strategic management at the level of organization requires the following questions to be answered:

- What are the goals of the organization?
- What image the project of the organization will have?
- What are the achievements that the organization needs to reach?
- What is the activity that the organization will be dealing with?
- How can the resources of the organization be better utilized for achieving the defined goals?

Sectorial level is the middle level of the hierarchy for making decisions, mainly comprised of the managers of the sectors of the organization. Managers at this level operationalize and specify the goals and strategies from level of sectors into goals and strategies at level of department. Essentially, the strategic management at sectorial level determines the area of operations for providing services, way of competition, etc. Also within this area the most promising segment is located, which is integral part of the general activities of the organization and is the one of its competitive advantage. This management provides an answer to the following questions:

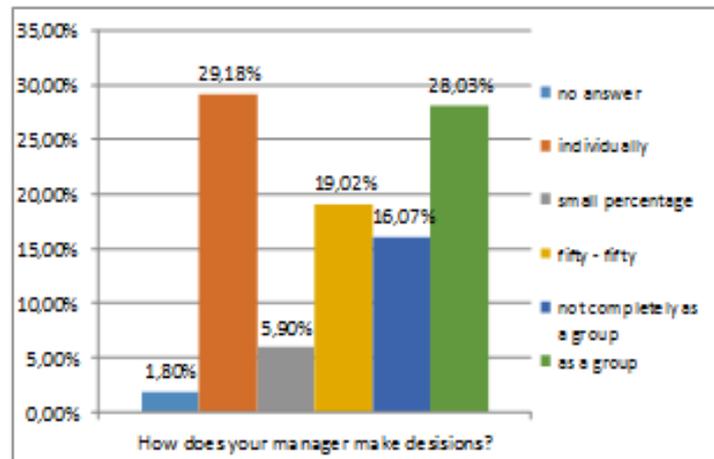
- What services will the sector perform?
- Who are the clients of the sector?
- How can this sector compete best in its direction with its services?
- How can the activity of this sector be coordinated with the organization?

The decisions on the level of sector affect in connecting the decisions from the level of organization with those from the functional areas. The decisions on this level are at greater risk of expenses and potential profit is less from the decisions at this level of organization but higher than at the functional level. The functional level is the lowest level of the hierarchy for making decisions, which consists mainly of the managers responsible for implementation from the same areas such as: services, finance, development, accounting and human resources. Managers from this level develop short-term goals (annual or less than one year) and short-term strategies for functional areas. However, the main responsibility is to place them in the implementation of the strategic plans of the organization. These last have to deal with such issues as the effect and effectiveness of the systems for services, quality of service and so on. The decisions at functional level implement general strategy which is made at the level of organization or sector. They are oriented towards implementation and have short-term and with low risk. Because the decisions on this level are specific and extensive and although the possibility of comparative profit is small, great importance is given to them.

## **5. RESEARCH RESULTS**

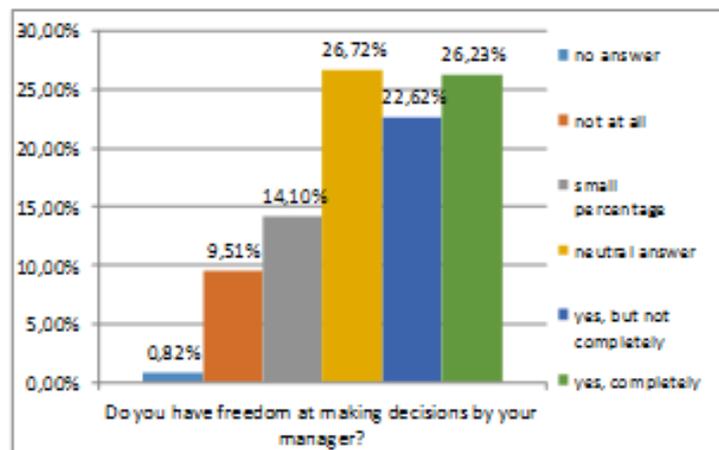
The way the areas in the public sectors are currently managed in the Republic of Kosovo is shown with a research. The public employees are those who are directly involved in the public sector and their responses are plausible. This research shows a scientific insight and clear picture of the reformation processes and their presence and / or non-presence as well as their slowness which naturally become an obstacle in the further development in the further development of efficient and effective public administration. The research was conducted in period July-August 2021 on 610 respondents.

The group of respondents included the employees in the ministries, state agencies and municipalities: managers, professionals and professional-administrative officials. The research itself covers various areas but for the purposes of this paper the following are extracted as the most important. The first picture shows the answers to the question and covers the way managers make their decisions. The analysis showed that 29,18% of the responders consider that their managers make individual decisions which means that in up to 1/3 of the institutions covered by the research autocratic way of managing things is still present. This fact is not good if it is compared with the 28,03% responses that show group way of decision making process.



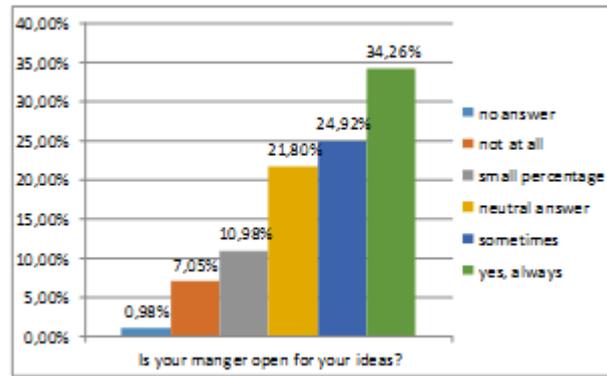
Picture 1: How does your manager make decisions?

The second picture shows the level of freedom given to employees by their managers.



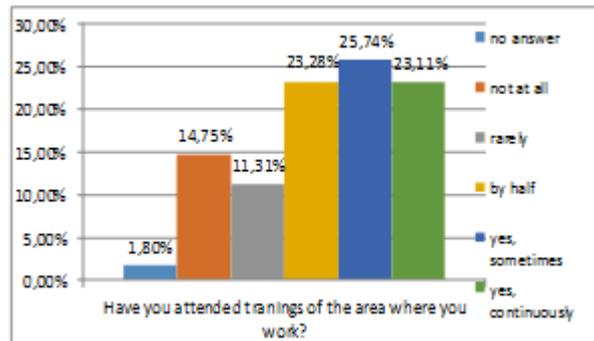
Picture 2: Do you have freedom at making decisions by your manager?

Complete freedom at making decision by their managers have 26,23% which is not a satisfactory percentage especially if it is about respondents from whom sometimes is required to make decisions in the absence of their managers. The data of 51,15% (if the responses neutral, small percentage and those without the freedom of making decisions are added) are almost without freedom of making decisions brings concerns since this high percentage shows presence of autocratic management in those organizations. Openness for ideas, that is, whether the managers are open for the employees' ideas show the data in the following picture.



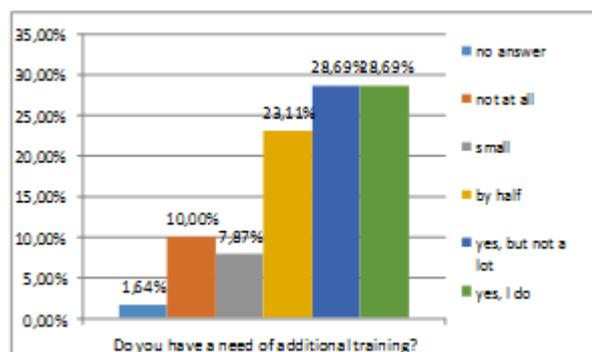
Picture 3: Is your manager open for your ideas?

Regarding to openness for ideas 34,26% and 24,92% or total of 59,18% from the managers are almost always open for ideas of the employees, yet a high percentage of 40,82% remains with those managers who do not allow their employees to show creativity and to express their ideas. The training of employees is also very important so the next question goes to that i.e. the respondents were asked about attending trainings for the specific work areas.



Picture 4: Have you attended trainings of the area where you work?

The training attendance of 23,11% and 25,74% i.e. total of 48,85% cannot be positive way of movement since a large portion of 51,15% goes to respondents who answered that they have never or rarely attended trainings of the areas where they work. Global changes are influencing the national changes which do not make the organizations of public administration immune and thereto they have to pay attention to appropriate training of their employees. As a support of the previous question the respondents were asked if they have a need of additional training.



Picture 5: Do you have a need of additional training?

An indicator showing that 28,69% and 28,69% i.e. total of 57,38% of the respondents feel that they do have a need of additional training of the area where they work which is necessary if we intend to follow the constant changes in the environment. All the indicators that were listed above show that the public administration in the Republic of Kosova has a long way to go in order to achieve satisfactory progress towards the reforms and to gain efficient and effective modern administration.

## **6. CONCLUSIONS AND RECOMMENDATIONS**

As the nature changes the society changes too. The modern 21<sup>st</sup> century has brought fast economic, business and social pace. Nothing can be kept in a shell – so the inertness of the public administration has to be eliminated. There are areas that need to be improved and changed and to shape the future looks of the public administration. It has to be understood that the public service has shifted the way of the providing their services and that it is now more than obvious that it has to serve the citizens. On the other hand, the awareness of the citizens has to be risen and they have to take responsibilities too in shaping and improving the public administration. The Government – both, the State and local has to find way to motivate and finance the innovative positive processes and to improve the dialogue between the private and the public sector. Creating e-government public services needs to be speed up, there are some attempts in Republic of Macedonia but they are far from sufficient. The necessity of conducting on-line researches shows up where citizens can be asked about many issues and the responses may be used for further improvements. Training, as it is seen out of the research, is additional point that public administration employees have to receive. That will improve their performance in their working places and the performance of the organisation will be better too. Last but not least is motivation. It must be present – it is human nature to be praised and rewarded. By doing so the management will raise the self-confidence at the employee and that should be done at regular intervals. All in all reformation process is slow and it takes time but it also needs initiative from the current management of the public sector to conduct the changes in full.

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## THE CONCEPT OF SUSTAINABLE DEVELOPMENT ON THE EXAMPLE OF SGC "ATON" NEDELIŠĆE

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### ABSTRACT

*The primary area of interest of this paper are the characteristics of sports tourists and the motives for their arrival at The Sports and gymnastics center "ATON" Nedelišće. Let us interpret sports tourists as tourists who choose sports as motives for their arrival, sports and recreational facilities, preparations, and competitions. In the Municipality of Nedelišće in Međimurje, there is one of the top sports complexes in Croatia - "SGC ATON". The word exists is one of the hypotheses that is in this paper, from the point of view of the sustainability of the sports center itself. The sports and gymnastics center "ATON" consists of a gymnasium, a multifunctional sports hall with a fixed and an auxiliary auditorium, a ballet hall, a fitness center, a wellness room, a catering part, a locker room with ancillary rooms, an office space in the podium and the hostel ATON, all of that served by 15 employees. The connection between tourism and sports is noted by many scientists, noting the unbreakable link between them from the very beginning. The connection lies in the motives of people to engage in sports and recreation during tourist trips. It is actually a person's constant desire to play, move, have fun, change the environment, and relax, while people can also eliminate the negative consequences of the modern lifestyle (stress). The sports and gymnastics center "ATON" is one of the most modern centers in the wider region and offers its customers a rich offer of sports and sports and recreational activities, while also organizing many sports competitions, such as: gymnastics at all levels (up to the European Championships), indoor soccer competitions from local to regional, local and state karate competitions, local and regional handball and volleyball tournaments. Furthermore, the center organizes cultural and artistic events and offers accommodation services, which favor domestic and foreign athletes coming to preparations, and above all, this applies to gymnasts. Sports tourists are the most frequent guests of The Sports and gymnastics center "ATON", and they come from the wider region. In this paper we will determine which areas most of them come from, and the reason for their arrival.*

**Keywords:** *ATON, sports infrastructure, sports tourism, sports tourist*

### 1. INTRODUCTION

Sports and tourism are two complementary phenomena. Tourism as the main trigger of people's activity outside their place of residence, and sports as the generator of an active vacation of an increasing number of people together form a specific form of tourism called sports tourism, with the participants interpreted as sports tourists. Tourists are increasingly focused on active vacations while traveling to certain destinations, with certain motives for going to specific destinations being sporting events, actively or passively participating in various events. Athletes arrive to sports centers for several motives, some of them being preparations, competitions,

rehabilitation or sports and recreational content. Guided by that, top athletes, clubs, and teams travel to specific destinations for the purpose of a quality sports preparation, rehabilitation or sports and recreational content. For the implementation of these activities, we find the importance of the sports infrastructure provided by a particular destination. SGC "ATON" is one of the topmost facilities that provides the maximum requirements of top athletes, primarily gymnasts. This paper focuses on the travels of tourists (athletes) to top sports facilities which provide the best conditions for a quality sports preparation of athletes for the upcoming season. Sports facilities that meet the needs of performing at the highest level are certainly in the minority, especially in the Republic of Croatia. Domestic athletes decide to go abroad, because the quality sports infrastructure in Croatia is missing, from football stadiums and dilapidated sports halls to obsolete sports facilities. One of the facilities that makes an exception is SGC "ATON" in Međimurje County, i.e., in the Municipality of Nedelišće, which recognized the importance and significance of such a facility and built a gymnastics center that initially had the status of a National Gymnastics Center through a public-private partnership with an investor in 2008. As a number of sports clubs, associations and other social organizations operate within the Municipality of Nedelišće, which have previously operated in inadequate conditions and unsatisfactory premises, a joint agreement encouraged the initiative to resolve the question of the sports and recreation zone "North" in Nedelišće. Therefore, the construction of a center, which would include halls with the necessary accompanying facilities, was envisaged. These facilities would satisfy the potential users whose activities require conditions of better quality. The fact that such a center would be able to stand out as a National Gymnastics Center and a center for other sports where it would be possible to prepare all national teams, as well as hold major international competitions, would fully meet the needs and opportunities of its public use. This fulfills its purpose of construction, and such a center, with rich facilities incorporated in one place, does not exist in the Republic of Croatia, nor within a 500 km radius. This is an exceptional advantage in its implementation, and it reduces the impact of competition to a minimum (Tkalčec, 2013). The elements of the justification of the project are reflected in the popularization of sports and the implementation of recreational programs, the organization of all types of competitions at the county, regional and national level, the organization of international competitions, the usage of accompanying contents from individual to team preparations of domestic and foreign athletes, the organization of cultural and artistic events, and the exceptional contribution to the local government unit and the Republic of Croatia as a whole. It must be mentioned that the specificity of this facility is outlined by the fact that such a center did not exist in the Republic of Croatia and was therefore named the National Gymnastics Center (Tkalčec, 2013). The Sports and gymnastics center "ATON" Nedelišće is a unique sports facility that provides numerous sports and recreational contents for the quality preparation of athletes from several sports. Gymnasts, basketball players, volleyball players, football players, handball players and karatekas have participated in the preparations so far. Focusing on the basic sport - gymnastics, SGC "ATON" Nedelišće meets all the requirements according to the international standards of the World Gymnastics Federation (FIG) and the polyvalent use of accompanying contents of athletes. SGC "ATON" is a unique sports center that combines all sports and recreational facilities in one place (gym, wellness, fitness, and accommodation services). It contains top-quality equipment according to world standards, it offers a wide range of indoor sports, and the organization of major sporting events, as well as national and international competitions (Tkalčec, 2018). Health tourism and sports and recreational tourism are not mutually exclusive, but are interconnected (Breslauer, 2012) through rehabilitation, various wellness programs and kinesiotherapy. Therefore, serious top sports facilities have a section for health tourism in their scope of work, while SGC "ATON" has accompanying contents in its offer. The importance of having a quality sports infrastructure is certainly one of the basic prerequisites for strengthening the interests of potential users related

to the quality of conditions created to meet their needs (Tkalčec, 2013), but also for creating top results in certain sports, in this case gymnastics, which is evident from the array of medals from European and World Championships, and the Olympic silver medal in gymnastics (Filip Ude Beijing 2008). The sports infrastructure is also important for sports recreation, which is traditionally included in the tourist offer in sports facilities. By constantly working on the promotion of sports facilities and quality and well-structured sports and recreational programs, along with the promotion of an active daily exercise, we provide an important goal - to offer programs to tourists, not just the domicile population, who are still the majority users.

## **2. SGC ATON NEDELIŠĆE**

The sports and gymnastics center "ATON" is located in Nedelišće, Međimurje, and is characterized by an excellent transport connectivity with all parts of Croatia and Europe. The center unites several contents, i.e., dedicated spaces. The sports and gymnastics center "ATON" has an area of 5200 m<sup>2</sup> and consists of:

- A multifunctional sports hall with seats and an auditorium for 1,500 spectators (or about 3,000 spectators for concerts and various events)
- A specialized gymnasium with a smaller auditorium for 100 spectators (a unique gymnastics space in Croatia, with built-in top-quality equipment in accordance with the standards of the International Gymnastics Federation – FIG; its equipment and quality are among the top 10 in the world; such a complex is unique within a radius of 500 km)
- A small recreation hall (aerobics, Pilates, Zumba, ballet, karate, group trainings, space for seminars and conferences)
- Wellness (sauna, Jacuzzi, solarium and massage rooms)
- A fitness center (gym)
- Hostel ATON (13 double and 3 single rooms, and additional accommodation for 13 people on extra beds)
- Catering (café bar with a terrace; a dining room).

Within not only the local self-government units, but also the entire Republic of Croatia, as well as the Municipality of Nedelišće, several sports clubs, associations and other social organizations operated in inadequate conditions and unsatisfactory spaces. This prompted the initiative to envisage the construction of a center that would include polyvalent halls with accompanying facilities as part of the solution of the Sports and Recreation Zone "North" in Nedelišće. For the fact that the lack of adequate working conditions is a limiting factor for the further development of many sports and social activities, the project got the green light from all potential beneficiaries whose activities require conditions of better quality. The fact that such a center would be able to stand out as a National Gymnastics Center and a center for other sports where it would be possible to prepare all national teams, as well as hold major international competitions, would fully meet the needs and opportunities of its public use and the purpose of its construction. The construction of the center provides an opportunity to use its sports opportunities by potential users of all ages with the provision of professional assistance of proven top-quality staff, as well as the organization of top cultural and artistic events (Tkalčec, 2013). Planning the construction of the facility with a sports-based gymnastics facility and an accompanying infrastructure was based on a research related to the needs of athletes, and the experiences gathered by experts as future leaders of the sports and recreational activities of the center. The initiative for the construction and equipping the gymnastic spaces with top-quality equipment in Međimurje came from the Gymnastics Club "Marijan Zadravec - Macan" Čakovec. Since the GC "Marijan Zadravec - Macan" has achieved exceptional results for many years at the national, European and international level, and the training conditions in the existing hall were unsuitable for the possibility of further progress in achieving even better results, an

initiative for the construction of a center was launched, which would, with all the accompanying facilities, enable quality preparations of athletes without the need of travelling to preparations outside the borders of the Republic of Croatia. After the withdrawal of the city of Čakovec from the implementation, an alternative solution was found with the Municipality of Nedelišće. Together with the Municipality of Nedelišće a public-private partnership for the construction of a sports center was agreed. Based on the collected information, it was determined that a significant advantage of the center would be the integration of content in one place: indoor sports (handball, basketball, volleyball, football, etc.), gymnastics, cultural and artistic events, fitness, wellness, café bar, and accommodation. The fact that the unification of the mentioned contents also represents the distinctiveness of this project, and thus it is possible to use different contents and activities for a larger number of users with the possibility of their commercialization. The project was successfully implemented as a unique example of private investor investment in a sports infrastructure in the Republic of Croatia (on the principle of a public-private partnership), which makes a great contribution to further economic growth and meeting the infrastructure development goals, as well as providing better public service to citizens. The opening ceremony of the center was held on May 31<sup>st</sup>, 2008 (Tkalčec, 2013). In Croatia, SGC “ATON” is one of the centers where all the facilities are combined in one place (halls, accommodation facilities, fitness center, wellness, catering). The center is equipped with state-of-the-art equipment according to world standards. The spaciousness of the center is suitable for economic and cultural events. Indoor spaces and other facilities enable the organization of major sporting events, national and international competitions. There is the possibility of organizing all kinds of recreational activities in the center, and the indoor spaces and other facilities allow many sports (Tkalčec, 2018).

## 2.1. Organizational structure of SGC “ATON”

The organizational structure is shown in Figure 1 from which we can determine that we have several levels of management. At the top is the manager, who is the person responsible for all other employees in various business segments. The manager of SGC “ATON” is the main and responsible person who organizes the work of the sports center, manages the business and is responsible for the business of the center itself. The organizational structure is divided into specific departments. Managers in sports tourism have an important role in uniting jobs from different segments, and the education of such staff is possible at The Polytechnic of Međimurje in Čakovec (Breslauer, 2010).

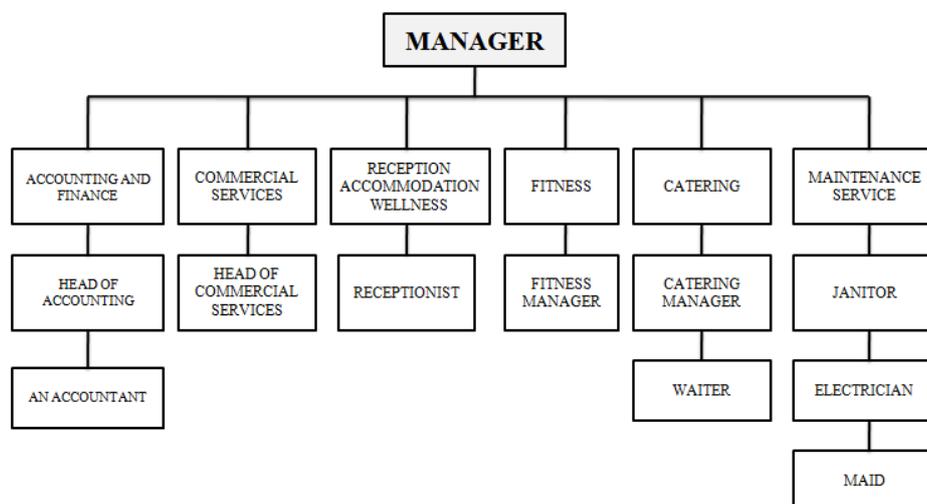


Figure 1: Organizational structure of SGC “ATON” Nedelišće  
 (Source: author’s work based on internal data SGC “ATON”)

Each department has its own manager responsible for its own business department. From Figure 1, the diversity of the center's human resources department can be seen, which is understandable considering that the center offers a wide range of services to its customers. In conclusion, the manager is the main and responsible person who manages the operations of the center, and all employees and heads of services are exclusively responsible to the manager of the center.

### **3. SPORTS AND RECREATIONAL FACILITIES**

The intention of SGC "ATON" is to become a central place for preparations and competitions of the best gymnasts in the world, but also other athletes who want to train in excellent conditions and at affordable prices. The center offers a wide range of services to its customers, and the choice is not only limited to top athletes, but also for recreational athletes. The sports and recreational facilities at ATON with its facilities and possible activities are shown in Figure 2, with the café bar ATON which offers catering services, and the hostel ATON which offers accommodation for tourists in double and single rooms with extra beds. By examining Figure 2, we notice the offer in seven segments for the users of the center itself, which offers numerous contents for the recreation of potential users. The center nurtures comfort, rest, and relaxation as motives for the arrival of tourists and users at ATON. The center offers a form of health tourism through wellness, catering services in Bistro ATON, a multifunctional sports hall for all indoor sports (football, basketball, handball, volleyball, etc.), a gymnasium with state-of-the-art equipment for achieving top sports preparations and competitions, a fitness center for sports and recreation of users, and within the complex the center offers accommodation services for potential users. Tourism and sports are the leading economic activities in the world, and many countries and regions are turning to tourism and sports tourism as one of the main drivers of economic development. Croatia is no exception to this, and has a long tradition of tourism, but it also has sporting success and excellent athletes as the best promoters of the country (Breslauer, 2010). The same situation is in the region of Međimurje, which can be proud of the silver medal from the Beijing Olympics. The silver medal was won by the gymnast from Međimurje, Filip Ude, who, along with other gymnasts, was one of the reasons for building SGC "ATON".

*Figure following on the next page*

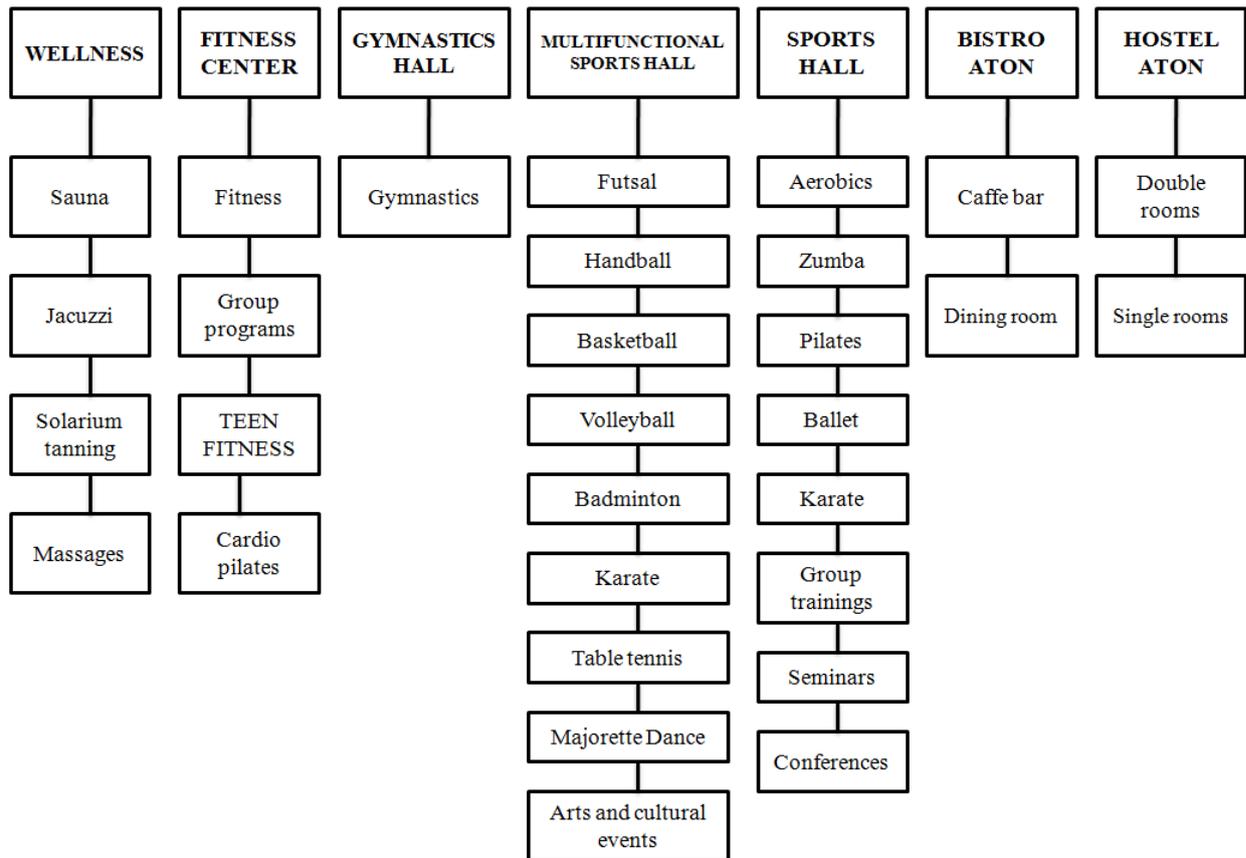


Figure 2: Sports-recreational and accompanying facilities of SGC "ATON"  
 (Source: author's work based on internal data SGC "ATON")

According to Bartoluci (2007), sport in modern tourism has not only a perceptual role, but it is also an important matter of the stay in which tourists become active participants in various sports. The economic effects of sports and recreational programs are achieved by renting various sports facilities, using sports facilities, schools, courses for learning different sports skills, preparing athletes in various sports, sports games, sports and entertainment attractions, tournaments and various competitions, and major sporting events. The sports and recreational facilities at ATON are intended for all age groups, with the facilities adapted to a particular group of recreational athletes, as well as for people with special needs or disabilities. The facility is adapted for people with disabilities, so it is possible for them to play sports actively. ATON takes care of athletes with disabilities and special needs and offers sports training and competitions for athletes with disabilities and special needs. Sports and recreational programs at ATON can be divided into several groups:

- Planned sports recreation
- Fitness
- Health programs
- Sports and recreational competitions
- Recreation for athletes during preparations
- Recreational programs for people with disabilities and special needs.

The sports and recreational tourism at ATON has an impact on the development of sports and sports recreation, and is reflected primarily through competitive sports tourism throughout the whole year (gymnastics competitions, indoor soccer championships, handball tournaments, karate tournaments).

During winter, sports and recreational programs are held in heated halls. More and more sports have distributed their competition systems throughout the whole year, so that the seasonality with respect to the seasons does not apply to most sports. Modern sports facilities therefore have no downtime in the winter months because typical summer sports have moved to halls, e.g., football/indoor football tournaments or, as is the case at ATON, the six-a-side club indoor football championship, and the indoor football tournament “ATON Limač Cup” for all age categories, from the youngest (U6, U7) to the older ones (U19). Among the most important competitions that were held in SGC “ATON” are: national championships and cup finals in gymnastics, regional championships in gymnastics, the International Croatian Championship in gymnastics, regular volleyball competitions (1<sup>st</sup> league), handball and basketball competitions, international karate tournaments, and majorette dance competitions. In addition to the above, winter sports and recreational tourism at ATON can also be perceived through wellness programs, recovery of athletes, fitness programs and programmed sports recreation.

#### 4. ACCOMMODATION CAPACITY

Within SGC “ATON” there is the hostel ATON, which provides accommodation for tourists, athletes, individuals, or groups. The hostel offers the possibility of accommodation in modern double and single rooms, with a capacity of 29 people, with the possibility of additional accommodation on extra beds for 13 people. Finally, the hostel offers accommodation for about 40 people.

YEAR	NUMBER OF TOURST BED NIGHTS		
	Domestic	Foreign	Total
2016.	777	1953	2730
2017.	844	2140	2984
2018.	945	2304	3249
2019.	1045	1218	2263
2020.	452	68	520
2021.	812	338	1150

*Table 1: Structure of arrivals and overnight stays in SGC “ATON” 2016. - 2021.  
 (Source: author’s work based on internal data SGC “ATON”)*

Table 1 shows the structure of overnight stays at ATON for the period from 2016 to 2021. In the period from 2016 to 2018 the increase in overnight stays of both domestic and foreign tourists who used the services of accommodation in the center is visible. It is important to mention that until 2019, foreign tourists predominate, 71% of them compared to domestic tourists from Croatia. During 2019, the number of domestic and foreign tourists is almost equal, where 53% of overnight stays are foreign tourists. Over the next two years, this ratio turned many times in favor of domestic tourists, all because of the Covid-19 pandemic, which stopped both travel and sports. During 2020, there was a significant decline in total overnight stays, where the number of overnight stays decreased fourfold compared to 2019. Therefore, in 2020, 87% of the total overnight stays fall on domestic tourists, while in 2021, 71% of the overnight stays fall on domestic tourists. In 2021, there was an increase in total overnight stays. The reason for the increase lies in the stabilization of the global pandemic, so the total number of overnight stays increased by 55%. However, this is still a significantly lower number of overnight stays, i.e., it is three times less than the total overnight stays compared to 2018.

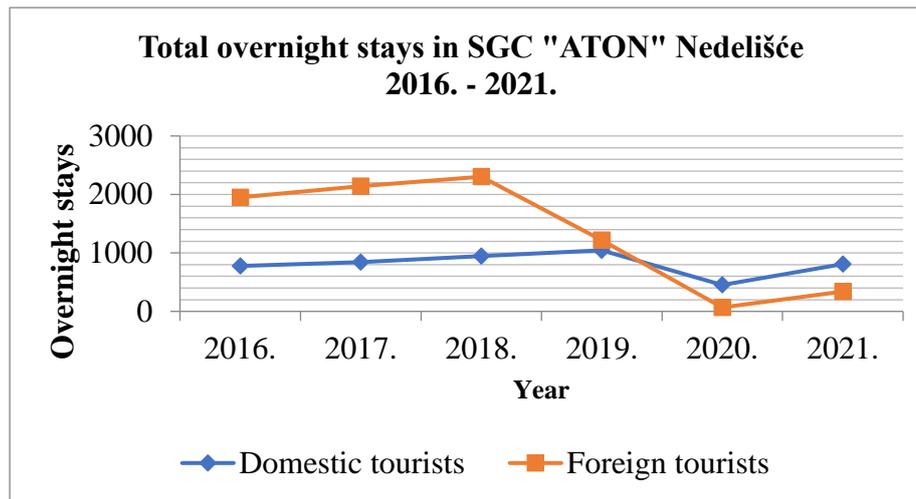


Chart 1: Total overnight stays in “ATON” Nedelišće 2016. - 2021.  
(Source: author’s work based on internal data SGC “ATON”)

When analyzing Chart 1, we can conclude that the primary overnight stays of foreign tourists in SGC “ATON” were up until the pandemic, i.e., until 2019, also including that year. With its quality and international standards, the center meets all the conditions for providing quality sports preparation for athletes. The major proportion of preparations are gymnasts, which is understandable given the fact that the primary sport that is most represented in the sports center is gymnastics. It was detected that in the period from 2016 to 2019, a larger number of overnight stays was realized by foreign tourists/athletes, which certainly confirms the fact that the center is acceptable and interesting for foreign tourists (athletes) who have recognized the quality and standards necessary for a quality sports preparation. On the other hand, 2020 was marked by the global Covid-19 pandemic, which greatly affected global sports, and thus ATON’s business, with a reduced number of overnight stays. Only 68 overnight stays were realized (Table 1), which translates to 97% fewer foreign tourists compared to 2018, when there were 2,304 overnight stays of foreign tourists. As a result, there was a huge drop of almost 70% fewer foreign tourists between the two compared years. Comparing 2017 and 2021 from the aspect of overnight stays between domestic and foreign tourists, we found that the number of overnight stays of foreign tourists is almost three times higher than the domestic ones (2140 foreign, 844 domestic tourists/athletes). However, the global pandemic has paid its toll, which can be seen in the lower number of overnight stays of domestic and foreign tourists/athletes. When analyzing the year 2020 and the previous year, the total number of overnight stays is four times less than in 2019. Finally, in 2021 (data taken up until November) SGC “ATON” records a certain shift in the number of overnight stays. At the end of the calendar year, the number of total overnight stays doubled compared to the previous year. By November 2021, “ATON” recorded 1,150 overnight stays, which is twice as many as in 2020, when there were 520 overnight stays. In conclusion, if we consider that the center has 13 double and 3 single rooms, which can accommodate 29 people, plus the extra beds, we have the possibility of more than 10,000 overnight stays per year, and it turns out that the utilization of our accommodation capacity is only 30%.

## 5. CONCLUSION

The Sports and gymnastics center “ATON” has had a satisfactory business from its opening until today, except for the pandemic years 2020 and 2021, primarily by adapting to the current situation and maintaining its plan of existence. Guided by the hypothesis that the center has existed for years, the facts for the sustainability of the center will be established, primarily looking at the sustainability of the center from an economic point of view.

Everything was done correctly, because already in the second half of 2021, with the calming of the pandemic and new offers, the situation began to improve financially. The economic sustainability is very important, and it promises an efficient economic development and resource management so that they can be used in the future. For this reason, it is necessary to co-finance the costs of current and investment maintenance of the facility by the public partner, because the lack of financial support from the wider community does not allow the sustainability of the sports facility, which is in the public interest. The lack of support, for whatever reason, has a negative impact on the further development of the center, and there was no return of the investment due to negative business results during the pandemic years. Looking “from the outside” at the functioning of the center, with its service activities in all areas, especially in the field of sports, regardless of its internal economic difficulties SGC “ATON” operates neatly. This is reflected in the provision of services at a high business level, in the proper execution of financial obligations, in social activities in sports at the local and national level and with a positive approach to all clients and business partners. Thus, “from the outside” there are no economic problems and SGC “ATON” can be considered a successful business and public-private partnership for everyone except for the owner. Despite the negative financial results, the center operated professionally, providing clients and partners with high-level service, organizing sports competitions, cultural and artistic events, and has also achieved several sports awards, and among other things, it is called the National Gymnastics Center. Certainly, the most significant successes of the center's users are: participating at the Olympic Games in Beijing (2008), London (2012), Rio de Janeiro (2016), winning the Olympic silver medal in the men’s pommel horse competition (Filip Ude, 2008), vault World Cup winner (Tijana Tkalčec, 2010 and 2011), winning the silver medal at the World Championships in pommel horse, winning numerous medals at national championships and World Cups around the world (Doha, Guimaraes, Koper, Osijek, etc.). The great successes of athletes, especially gymnasts, lure other athletes-gymnasts from all over the world to come to SGC “ATON” for their preparations. Some of the countries where gymnasts come from are Canada, Russia, Israel, Lithuania, the Czech Republic, Slovenia, Slovakia, etc., and thus ultimately contribute to the success of the project and the promotion of the Municipality of Nedelišće, Međimurje County and the Republic of Croatia. The facility was built in accordance with the requirements and needs of the Municipality of Nedelišće for clubs, to achieve social standards by creating conditions for associations in all segments of the social life, cultural and artistic events (fairs, Christmas concert and Međimurska popevka), and the needs of the new Elementary School Nedelišće. Through its activities and successes at the world level, the center has contributed to the recognition of the Municipality of Nedelišće, as a top sports and gymnastics site in Europe. Today, sport is an important industry that creates jobs, increases employment, and sport itself is a generator of certain benefits: income, sports and recreational services, area development, increasing standards, increasing the quality of life, etc. Guided by the fact that sport is a factor in the promotion of a certain country, and that with great results, this center, and the opportunities it offers, opens the possibility of entering the international market, SGC “ATON” is certainly competitive. This is confirmed by the fact that the users of the center, athletes, teams, and recreational athletes from all over Croatia, European countries (Austria, Slovakia, the Czech Republic, Serbia, Slovenia, Hungary), and other countries (Israel, Russia, and Canada) return to the center, proving their loyalty to the center and the conditions it provides. In 2019, as part of the award in the sector “Tourist flower - Quality for Croatia”, SGC “ATON” won the third place in the competition from 364 hostels in Croatia, which is proof of the high quality of the accommodation services. The alternative possibilities for the sustainability of the center are reflected in increasing the number of users of all contents, keeping the existing costs, valorization of the name of the center as an object of public interest and naming the center the National Gymnastics Center.

Therefore, it is necessary to emphasize and seek support through the determinants in changing the model of financing public-private partnership. The sustainability and the future of the center is primarily seen through the use of the center itself, which is mostly reflected in the use of large halls - multifunctional and gymnasiums, where morning appointments are largely free, which is a huge setback for such a center. With the construction of a new elementary school, unused capacities in the morning would be filled through physical education (P.E.) and additional contents for students. Physical education can be held not only in the multifunctional hall, but also in the specialized gymnasium, and the afternoon dates would remain open for extracurricular activities of the children. The future of the center depends on subsidies and the involvement of local governments. The current situation of the global pandemic has affected all parts of society, especially sports and sports recreation, where similar and/or the same sports facilities unfortunately have the same problem. Sports and recreation should be an important factor in our lives, and for that reason, we have these sports facilities just like SGC "ATON".

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## ECOLOGICAL SUSTAINABILITY OF DIGITAL TEXTILE PRINTING

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### **ABSTRACT**

*In the modern times of excessive production and consumption of resources, meaning (textile) products, noting that the textile industry is one of the biggest polluter of the environment, the printing industry attaches great importance to environmental protection and eco-design. The need for speed in the production of textile (and other) products surely has certain consequences for the economy, ecology and society, as well as for human health, given the harmful by-products that inevitably arise from the textile industry. In the field of textile printing technology, in order to adapt the production method to certain requirements, digital printing is considered one of the most environmentally friendly techniques due to low cost, high precision and speed and low consumption of water, energy and chemicals. Nevertheless, digital printing also has certain advantages and disadvantages over traditional techniques. For example, compared to screen printing, more dye, energy and water consuming, digital printing needs fabric pretreatment, which in turn requires raw materials and energy and causes environmental impacts. Digital printing is better for small batches also because of the flexibility of the system and fewer amounts of production waste etc. In addition to the chosen technique, in the context of economy, the choice of fabric type for printing is of great importance. By choosing an environmentally friendly base material, environmental impacts of printed products can be reduced. This paper reviews digital printing technology in the context of environmental sustainability, with an emphasis on analyzing its advantages and disadvantages over traditional printing techniques. The paper analyzes the ecological aspects of the types of pretreatments and dyes, ie the optimal choice of the same with the aim of advancing the technique of digital printing and high quality ecological textiles production.*

**Keywords:** *Digital printing, Dyes, Ecological aspects of printing, Sustainability, Pigments, Screen printing*

### **1. INTRODUCTION / DIGITAL TEXTILE PRINTING – ECOLOGICAL PRINTING TECHNIQUE?**

In modern times of excessive production and consumption of resources, where textile industry is one of the biggest polluter of the environment, the printing industry attaches great importance to environmental protection and eco-design [8]. High consumption of chemicals used in the process of printing, such as dyes, binders, solvents, surfactants, suspended solids and some other has been found as environmentally hazardous and therefore responsible for environmental pollution. Moreover, water and energy consumptions are high in textile printing [20]. As a result, large amount of effluents containing harmful chemicals are released from the print production industries. This fact is common for conventional printing techniques such as rotary screen printing.

In contrast, DTP (digital textile printing) is recognized as an eco-friendly technique that consumes significantly less water and energy compared to screen printing [20]. According to Tyler, the first textbook written specifically to support digital textile design was published as recently as 2009. The Introduction has this paragraph about the expanded options available to designers: „The development of digital printing onto fabric is changing printing methods and removing the restrictions that textile designers have traditionally faced: freed from concerns about repeat patterns and colour separation that are key considerations in screen- and roller printing, designers are able to work with thousands of colours and create designs with a high level of detail. There is also greater freedom for experimentation, facilitating one-off production as well as smaller print runs and prints engineered specifically to fit the form of a garment [15].“ Nowadays, as the awareness of sustainability grows throughout textile and printing industry, when presenting textile digital printing technologies, the companies still pay attention to countless possibilities of digital printing technologies with emphasis on the aesthetics. However, the main focus when presenting digital printing is on sustainability of the technology. According to McKeegan, „The digital printing technologies are presented as more sustainable by nature than traditional analog alternatives, offer a way forward towards clean, efficient, profitable manufacturing. As an industry all sectors of the textile community are embracing sustainable manufacturing practice, from the fibers that are chosen to spin, the fabric preparation chemistry that are used for coating and finishing, through to the print machinery and inks formulations which are used in printing processes. Massive investment has and continues to be made within every sector, many of which now collaborate to further develop innovative new stream-line processes and technologies [6].“ Textile digital printing is a multi-disciplinary field and it is important for product developers to work in a concurrent mode to ensure effective communication across the supply chain. Inkjet digital textile printing (IJDTP) is an innovative, emerging technology that offers new product development opportunities for specialty markets. The digital textile printing technique interlinked the design software and the printer, the printing environment, the fabric pre-treatment the post-treatment and the operator [14]. This printing method is also called a new environmental technology, green and eco-friendly method of textile printing that has been initially applied in the textile industry possessing unique superiorities such as low cost, high precision, and celerity compared with traditional printing which was limited to produce high-quality and personalized products [2, 4, 5, 8]. Digital printing does not require set up costs for new print design, it allows printing fabrics instantly. Interest in IJDTP is driven by the need for new product innovations and quick response to consumer demand. Digital ink-jet printing has been developed to either replace or cooperate with conventional printing in the textile industry [7]. In traditional printing large quantities are required and then it is important that the prints are certain to be successes on the market. The print-on-demand aspect with digital printing makes it more flexible. Inkjet printing is a non-impact and non-contact printing technology in which colourants are ejected, either by dropping or spraying, through the print-head nozzles onto the substrate to be printed; a process that enables direct transfer of a design onto the fabric from a computer file, without the need for production of screens or for running heavy-duty machinery [11]. The ink is dropped onto the material, which tolerates many different types of surface textures. Compared to the size of the drop dripping from a faucet, the drop size of the digital printer is very small. Ink jet technologies are typically classified in two large classes: Continuous Ink Jet (CIJ) and Drop-on-Demand Ink Jet (DOD) [11]. An overview of the mechanisms of interest is presented in Fig. 1 [14].

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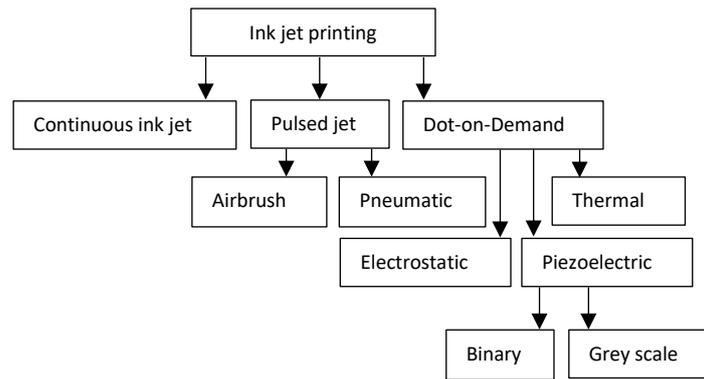


Figure 1: Classification of ink jet printing technologies for textiles [14]

According to Tyler, there are three areas where digital printing of textiles differentiates for other textile printing methods and creates new possibilities approaches to printing; flexibility, process enhancement and innovation [1, 22]. Regarding flexibility digital printing of textiles enables reduced set-up costs, small batches and design freedom. There are process enhancements with digital printing because there is less waste and no need for stock. Potential for innovation is increased because digital textile printing enables customization [3]. The goal of this review is to evaluate the environmental impacts of digital textile printing, and to find out the advantages and disadvantages of digital printing from environmental point of view.

## 2. DIGITAL VERSUS SCREEN PRINTING TECHNIQUE – COMPARISON

wadays about 11%-13% of all textile products are printed products [5]. When comparing printing methods used in global market in 2008 and 2019, shown in figure 2a and 2b, it can be seen that screen printing techniques are still leading in global market. Compared to that, digital printing market continues to grow, but still the market segment of digital textile printing is only one to two percent. Contrary to expectations, digital printing has scarcely any impact on the traditional printing process [9]. However, the trend now is shorter deliveries and runs because fashion changes frequently and in some cases there can be as many as five to six design changes in a year. According to the global printing federation FESPA, digital textile printing technologies are facilitating the fashion world to be greener. With the rapid developments in the fashion industry, the textile printing industry is also transforming. In the textile market of 165 billion dollars, over 30 billion square meters of textile printing is carried out annually in the world [12].

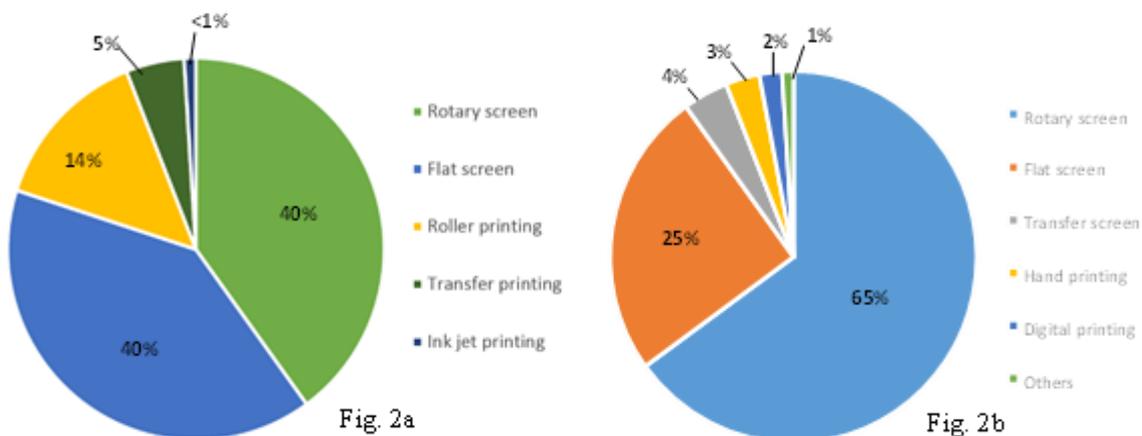


Figure 2a and 2b: Printing methods used in global market in 2008 and 2019 [10, 11, 13]

Inkjet digital textile printing and conventional textile printing are similar in terms of fibres, fabrics and colourants used, but there are major differences between the two technologies that impact adoption and use [4]. When compared to conventional screen printing processes, DTP reduces small run and sampling costs. Screen printing is more dye, energy and water consuming whereas digital printing needs fabric pretreatment, which in turn requires raw materials and energy and causes environmental impacts. Conventional textile screen printing requires the creation of separate screens or rollers for each colour in the print design. Therefore, the number of colours that can be used in a conventionally printed textile design is limited, additional colours require the production of more screens, which increase manufacturing costs. The print design repeat size is constrained by the screen or roller dimensions. Inkjet digital textile printers permit an unrestricted vertical repeat size and enable engineered textile designs, designed to specific shapes and/or sizes of a finished textile and/or apparel product [4]. In screen printing technique, colours are mixed individually to match manufacturers' and/or designers' specifications. Colourants in DTP must meet the same quality standards as conventionally printed textiles such as wash, colour and crock fastness. Instead of separate screens and spot colours that are mixed according to specifications, a typical inkjet printer uses a fourcolour CMYK (cyan, magenta, yellow and black) system. DTP, when used in conjunction with CAD, enables the creation of print designs with hundreds of colours, photorealistic prints, large-scale print designs and engineered designs that are either expensive or unattainable via conventional screen printing [4]. The flexibility and customisation capabilities of DTP enable mass customisation, limited editions, or one-of-a-kind pieces, meeting the growing consumer demand for novelty and variety in apparel and textile designs. Due to these attributes, DTP has the potential to supplement, and in some instances replace, conventional screen printing [4]. The production process and comparison between screen and digital textile printing is shown on Figure 3 – digital technology simplifies the production line for textile printing. There is no need for color separation dye making and making plates. Therefore it becomes environmentally friendly and cost efficient for textile industry [10]. Generally, screen printing is more suitable for bigger printing batches whereas digital printing is more flexible and faster and therefore more suitable for smaller printing batches [3].

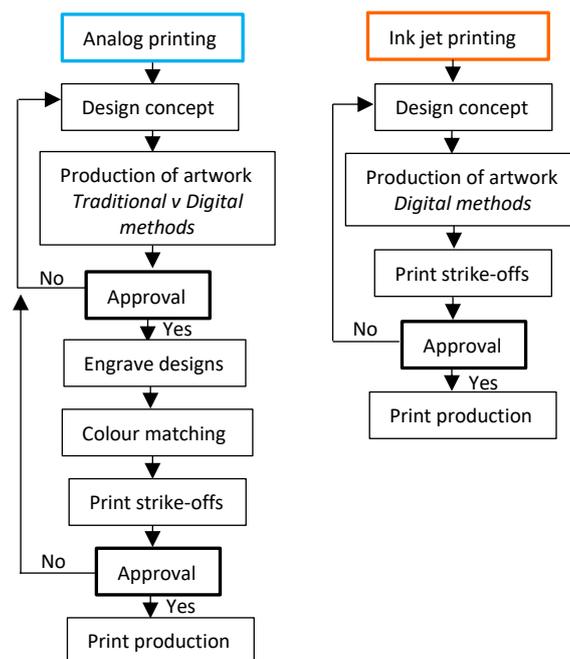


Figure 3: Production Process of Conventional Printing vs. Digital Ink-jet Printing [5, 11]

According to Kan, in rotary screen printing, which is the most commonly used textile printing method, the most important factor is fabric length. For long lengths, rotary screen printing is fast (30 – 70 m/minute), continuous and economical. The colour gamut is wide and no special fabric pre-treatment is needed before printing. For short runs, however, rotary screen printing is uneconomical owing to high downtime, high wastage of fabric and colours, high engraving cost, high labour cost and cost of time spent on colour matching, printing paste making, sampling design, registration, etc. Operations like screen engraving, print washing, and screen washing add significantly to the pollution load. Design sampling or proofing is particularly a very lengthy and expensive process [5]. Digital ink-jet printing offers some distinct advantages. For short runs, sampling or proofing is easy and economical and there is no screen. Consequently, all costs pertaining to screen engraving, paste making, strike-offs, downtime and wastage are eliminated. There are no registration problems and unlimited choice in terms of repeat size is available as all the dye goes onto the fabric. No thickener or paste is needed and, water and energy consumption are low. The technology is suitable for just-in-time delivery and mass customisation. The digital ink-jet technology is, however, still limited by low production speed, low availability of fast and low-viscosity dyes, and small size of colour cartridges. Fabric must be specially prepared to be able to run on digital ink-jet printers in open width conditions and to absorb dye quickly. Many pigments, like pearl, metallic and white, are not yet available for printing through digital ink-jet printers. Materials choice is also limited; stretch knits and performance fabrics are not printable as yet. In addition, post printing treatments for durability like print fixation and finishing are yet to emerge [5].

### **3. DYE OR PIGMENT BASED INKS IN DIGITAL PRINTING TECHNOLOGY – ECOLOGICAL ASPECTS**

Inkjet inks are the most important component in inkjet printing since the formulation and chemistry of inks determine the printing quality as well as jetting characteristics [13]. However, ink penetration and its related quality problems are still receiving a high level of attention by many researchers to develop superior inks that can surpass the quality of prints obtained by the conventional methods of printing. Colourants are either pigments or dyes. The main function of the ink is to bring a functional molecule, usually a colorant, to a substrate or simply put, to change the color of the substrate [5, 14]. Dyes are colored organic compounds soluble in water. They have to be capable of being chemically bonded to the textile fibres that form the substrate, whilst pigments are insoluble molecules that are held on surface of a fabric by an adhesive, resin or binding agent. No chemical reaction takes place – pigments have no intrinsic substantiveness for the textile substrate. Before printing, fabrics need to be clean and there may be a need for pretreatment. After printing, it is necessary to fix the dye by the application of heat or steam. The interactions between the ink, the media or substrate, and the printhead are complex. The nature of these impacts, with implications for the media–ink interaction, is illustrated in Fig. 4 [15].

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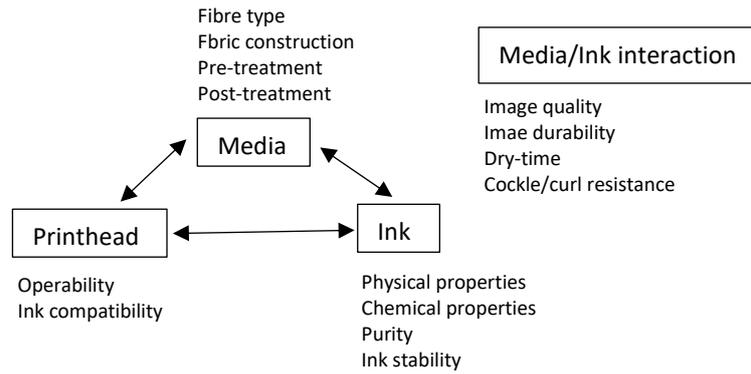


Figure 4: Textile Digital Printing Technologies [15]

The content of digital textiles printing vary depending on the type of colorant, the formulation base, the printing machine to be used, and the mode of curing [13]. Inks are comprised of a colourant, a carrier base and various additives which is shown on Fig. 5 which illustrates the classification of inkjet inks [14, 16]. Inkjet inks are generally classified into two broad categories namely 1. Base 2. Colorant. The carrier base refers to the media through which colorant is dissolved or dispersed and applied; it may be water, solvent, oil, phase change fluid (hot melt), or UV curable fluid. The colorant refers to the type of colorant being used within the medium thus dissolved dyes. There are four main categories of colorants [14, 16]:

- 1) Reactive dyes (for cellulosic fibres)
- 2) Disperse dyes (for polyester)
- 3) Acid dyes (for protein fibres and nylon)
- 4) Pigments (for all substrates)

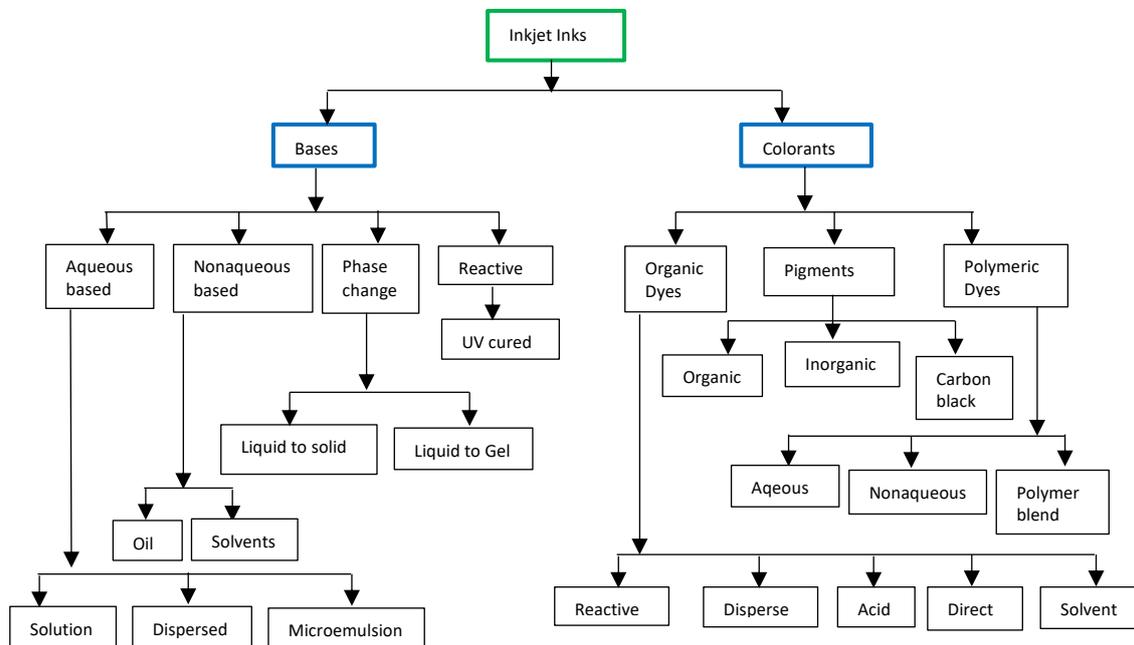


Figure 5: The chemistry of inkjet inks for digital textile printing [13]

According to Tawiah: „Nearly all the inks for digital textile printing are water based because they are designed for heads that require water-based inks. The usefulness of the carrier base is over once the ink is deposited on the substrate. Water is ideal in that it can evaporate relatively easily and is non-toxic.

The carrier base may constitute 80% of the ink. Whilst ease of evaporation is desirable once the colorant is on the substrate, it is not desirable at the nozzle. Colorants for textile substrates have to be fast for washing, light and rubbing. Functionality issues are just as important as putting colour on the textile“. Table 1 gives a summary of four different types of dyestuffs that are now being commercially used for digital textiles inkjet inks with each category capable of printing a particular type (or types) of fiber, their mode of interaction with fibers, coloristic properties and method of fixation [13].“

Colorant	Fiber Type	Color Fiber-Interaction	Coloristic Properties	Fixation
Pigment	All fibers	No interaction – complex surface polymer (binder) bonding mechanism	Good washing fastness Excellent light fastness, good rubbing fastness depending on binder content	Oven curing at 160-180 C for 30-90 seconds
Reactive dyes	Cotton, silk and wool, linen	Covalent fiber bonding	Bright colors, excellent washing fastness, excellent rubbing fastness, poor light fastness	Steaming for 90-120 C for 8-30 minutes depending on steamer type, washing and drying
Disperse dye	Polyester	Hydrophobic-solid state mechanism	Excellent light, washing and rubbing fastness, bright colors	Transfer press or “thermosoled” or oven cured depending on type of disperse ink
Acid dye	Nylon, slik, wool, leather	Electrostatic and hydrogen bonding with fiber	Bright colors, excellent light fastness, good washing and rubbing fastness	Steaming for 20-60 minutes depending on steamer type at 20-120 C depending on shade and fiber type, washing and drying (except leathers)

*Table 1: Digital Textiles Inkjet Printing Inks, Color-Fiber Interaction and Finishing Techniques [13]*

From the ecological point of view, special attention has been paid to inks that eradicate waste, emissions, and reducing energy input in manufacturing and the reduction or eradication of volatile organic compounds (VOCs) from inks have received a major boost [14]. So far, water-based inks have proven to be the solution to reducing VOC emissions because these inks are generally cheaper, reduces atmospheric pollution, have less solvents, lowers fire risks, produces less print odor, and are easier to wash-up on printing equipment. Water-based inks with little or no VOCs have been developed for both thermal and piezoelectric inkjet applications [12, 15]. Particularly water based pigmented inkjet inks are getting popularity due to their environmental friendly nature and weather stability of the pigments as colorants. The composition of water-based digital textiles inkjet inks is stoichimetrically formulated to meet specific requirements of substrates. Table 2 shows a typical composition of waterbased inkjet ink for printing textiles [13].

Component	Function	Concentration (%)
Deionized water	Aqueous carrier medium	60 – 90
Water soluble solvents	Humectants, viscosity controller	5 – 30
Dye or pigment	Provides color (Chromophore)	1 – 10
Surfacant	Wetting agent, penetrating agent	0.1 – 10
Biocide	Prevents growth of biological organisms	0.05 – 1
Buffer	Ph controller	0.1 – 0,5
Other additives	Chelating agent, binder, defoamer etc.	>1

*Table 2: General Composition of Water-Based Inkjet [13]*

### 3.1. Pigment versus reactive printing

When analyzing the choice of ink for DTP, the ideal would be to have an ink suitable for all kinds of textile substrates. Since this is not the case, the main question is following: which type of ink is environmentally friendly and sustainable, i. e. how many and what kind of VOCs are emitted by the ink? Are there any heavy metals in the formulation? How much energy will be needed to cure the ink or scrub the air of the pollutants emitted by the process?

What is the optimal choice of the inkjet ink? As mentioned before, compared to dyes, water-based pigment inks use an insoluble pigment to provide coloration of the textile. Pigments do not have a real affinity for special fibres, which makes them suitable for colouring on the top layer of a various number of fibres as well as blends. Due to the top layer of printing by using a binder for better substrate adhesion, most pigment inks are limited when it comes to multiple-wash as well as rub-fastness. Furthermore, the feel of the fabric is often stiffer than in reactive printing which is one of the main problems [18]. On the other hand, the use of pigment inks shows some remarkable benefits. With the suitability of printing on a various number of textile substrates, broad field of application can be served. Pigments are especially beneficial in areas where high light-fastness is required. Furthermore, the entire process, compared to reactive prints, is very quick and easy. The process of printing with pigment inks compared to reactive inks is shown on Fig. 6: „Due to their chemical characteristics, reactive dyes have to be bonded to the textile fibre after printing. Therefore, a steaming process of 8-12 minutes at 102°C is necessary. Subsequently, the unbound dye has to be removed in a complex washing process (after treatment) at different temperatures ranging from about 50°C to 98°C, with soaping agent to 60°C, and finally 30°C (slightly acid). Then the printed textile has to be dried. In comparison, the pigment printing process does not need the complex steaming and washing steps. Since the pigment dye is printed only on the top layer of the fabric without any chemical bonding, the textile fabric has to be condensed at 150-170°C for a few minutes to fix the pigments. Consequently, the pigment printing process requires significantly less water due to the omitted washing step. This may be a crucial deciding factor when deciding on whether to use digital pigment printing in the future. Nevertheless, an additional point has to be mentioned regarding the printing process with pigment inks. Due to the insolubility of the pigment particles, the sedimentation of them could result in problems of nozzle clogging in the fine nozzles of inkjet printing machines. Therefore, to overcome this, two things should be noted: firstly, all the inks have to be well stirred before using and secondly, the necessity of a print head with a circulating system, that provides a kind of continuous flow that avoids sedimentation and thus clogging the nozzles, becomes more and more important [18].“

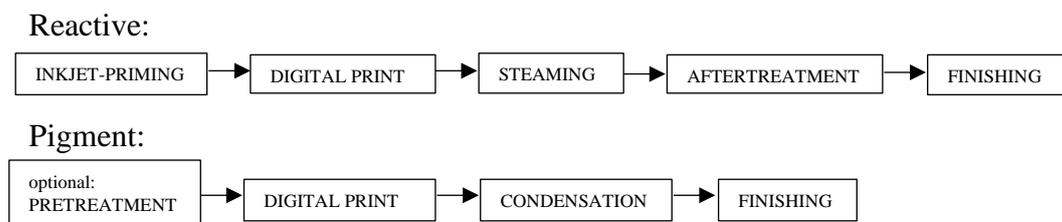


Figure 6: Comparison of the process steps of reactive and pigment printing [18]

Due to mentioned advantages, digital textile design industry is moving towards pigment inks [19]. According to FESPA, „Historically pigment printing has been held back by printhead technology, however now, with the advent of high speed-high solids printheads such as the Epson PrecisionCore head, all this is changing – as ink technology and printhead technology move forward together to open up the unique advantages that pigment printing has to offer to the digital printer. In the quest for speed of production, energy efficiency and the simplification of the print process - innovation towards a digital printing solution that removes the requirement for the pre-coating of fabrics for pigment printing has been paramount – “single-step” digital printing. All additional steps such as pre and post treatment can now be eliminated. Digital textile printing innovations now deliver a sustainable manufacturing process with significant reductions in equipment, time, and manpower costs using pigment inks. Advances in ink chemistry ensure that pigment technology delivers impressive printing results with excellent light fastness and wet rub fastness and can be used on all types of fabric, including blended

fibres without pre-coating. Machine platforms are now available from multiple vendors for light industrial and high- volume production and are designed specifically for all areas of the emerging digital textile printing marketplace. Industrial textile professionals, such as textile mills and web-to-print print houses can now choose from an impressive array of digital technologies to meet their production demands [19].“ Nevertheless, Scott Watkins, Chief Sustainability Officer at KISCO wrote an interesting article about sustainability within inkjet inks: *Sustainable inks for digital textile printing. What does “sustainability” really mean?*, where he states following: „A key driver in the adoption of inks for digital textile printing has been advances in printer and print head technologies. This has improved the productivity of machines and made printing an attractive option, particularly for on-demand, advertising and fast-fashion applications. However, these advances require ink formulations to be extremely stable. Thousands of tiny nozzles in expensive print heads must fire rapidly and repeatedly over many months and cannot be damaged or clogged by inks. The leading inks in use today therefore include surfactants, stabilisers and solubilising agents to maintain consistency. While reputable companies ensure that these additives are not harmful, there is a temptation to use well known chemicals such as APEOs, NPEOS, formaldehyde and chlorophenols. Many of these harmful additives have been phased out of analogue textile dyes through efforts of sustainability-focused manufacturers and industry-based regulatory frameworks. However, to date, these frameworks have not focused their attention on inks. Also, the relatively low capital costs of ink formulation has led to the emergence of many low-cost ink suppliers who only do formulation, not synthesis of the chemicals. In combination, this means that the risk of hazardous chemicals entering textile supply chains through inks has not been completely eliminated. Sustainable inks, from a chemical and environmental perspective, is therefore still a commercial goal rather than an industrial reality. In summary, inks for digital textile printing do represent an opportunity for the industry to dramatically reduce waste and improve our chemical and environmental sustainability. However, financial pressures in the form of demands for low pricing and the imposition of significant compliance costs risks creating a situation where corners are cut. The industry has made significant progress in improving the quality and sustainability of dyes. It is important that similar efforts are continued with respect to inks [16].“

#### **4. CONCLUSION**

In contemporary textile printing industry, economic, social, environmental and toxicological considerations have become more important than just improving textile print quality in order to achieve specific (aesthetic) goals. Advancement in inkjet technology has revolutionized the textile printing industry because it has notably eliminated the time and labor. Therefore, digital textile printing method is eco-friendly with negligible wastage, considerably cleaner, with good socio-economic effects as compared to traditional screen printing methods. Nevertheless, this changes in production will only be complete with good quality environmentally friendly inks that print all substrate and can offer superior coloristic properties. With advancements in software, hardware, and chemical technology being made coupled with active research by textiles chemist to develop universal set of dyes/inks suitable for digital inkjet printing on diverse textile materials, digital printing of textiles will yield its full potential and assume the center stage in the textile printing [13]. Particularly water base pigmented inkjet inks are getting popularity due to their environmental friendly nature and weather stability of the pigments as colorants. Digital textile printing innovations now deliver a sustainable manufacturing process with significant reductions in equipment, time, and manpower costs using pigment inks.

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## **ADVANTAGES OF THE CIRCULAR ECONOMY FOR SUSTAINABLE DEVELOPMENT OF SMALL AND MEDIUM ENTERPRISE**

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### **ABSTRACT**

*The concepts of circular economy and sustainability are considered necessary to solve many existing global, environmental and social problems of the modern business world for the development and sustainability of the living community. Since the industrial revolution, the model of linear economy has been known, which has become unsustainable due to the generation of large amounts of waste, and therefore a new model of modern economy, the circular economy, has emerged. The basic ideas of the circular economy are waste elimination, respect for the social, economic and natural environment and conscientious management of business organizations. By applying these principles, the circular economy has proven to be efficient and useful for sustainability, for solving the economic, environmental and social challenges of the modern business world. The circular economy model represents an opportunity for the development of small and medium enterprises that leads to sustainable development and economic progress.*

**Keywords:** *Circular economy, sustainable development, sustainable economic development*

### **1. INTRODUCTION**

Waste is managed for environmental protection, health care, the importance of balance in the natural ecosystem, financial stability, and improving the quality of human life from a social, financial and economic point of view. The unsustainability of resource extraction in a linear economy simultaneously with the constant accumulation of pollution has triggered thinking about the survival of such an economic model, but also about the survival of humanity. The growth and development of technology has led to a reduction in production and falling sales prices, as well as rising living standards, as factors that have led to uncontrolled disparities between the economic and ecological systems (Ludeke-Freund et al., 2019). Although a number of regulations and laws seek to reduce the disparity between production, consumption and their harmful impact on the environment, the results are not at the level expected. Nowadays, great hopes are placed in the potentials arising from networking, ie the connection between the system and man, and their mutual interaction should enable process optimization and lead to maximum efficiency (Rockstrom et al., 2009). The primary goal is to increase the quality of life of citizens, which is a consequence of more efficient use of resources, increased competitiveness, job creation through new models and services as part of the circular economy through innovation. Producing environmentally and economically acceptable recycling by following the strategies and plans of European practice is not at all easy (Steffen et al., 2015). European Union directives encourage the material and energy use of waste and call for a reduction in the amount of waste disposed of in landfills. Until recently, the world economy recognized only the model of a linear economy, which was based on the principle of "take – use - throw" which led to a large amount of waste. Such an unsustainable system necessarily had to change. Then, instead of the linear economy model, the circular economy model emerges, which is based on economic savings, new jobs, resource and energy savings and

contributes to climate change mitigation. The circular economy model is an opportunity for the development of small and medium enterprises in Croatia that can start the whole economy and enable sustainable economic development.

## **2. CIRCULAR ECONOMY**

Lack of natural resources is a key factor influencing the efficiency and continuity of the economy and production (Nikolaou et al., 2021). Reflections on more efficient use of resources and environmental protection have spurred the development of various concepts such as recycling, material savings, raw material savings, and ultimately the circular economy. By circular economy we mean an economy in which waste is almost non-existent, ie it is reduced to the lowest possible level (Bobek, 2016). Since the industrial revolution, we have only known the model of a linear economy that deals with the link between growth and consumption and the generation of large amounts of waste. In the linear model of the economy after the end of the life of the product, it was disposed of in a landfill, which together with natural resources increased the amount of waste generated (Robert et al., 2013). Recycling and treatment of waste is the first big step in changing the way of thinking of business people and all participants in the entire national economy. The concept of circular economy implies a model that changes the current paradigm, implies resource management in an efficient and planned way, and such a concept lays its foundations in eco-innovation, eco-design, advanced technologies, energy efficiency and the use of renewable energy sources. The circular economy includes industry, business models, and living habits that treat waste as a resource for reuse (Hicks and Dietmar, 2007). The circular economy as a new economic model promotes the transition of the economy towards energy efficiency, and unlike the transition of the economy in the past it retains existing jobs and creates new, green jobs (Chertow and Ehrenfeld, 2012). There is also a significant change in the perception of the customer in the circular economy, which is not oriented only to the price when buying a particular product, but to the value of how much the product costs in a lifetime. The circular economy requires a change in business culture, initial costs in the form of investment in changed business processes, education and a number of other prerequisites. Ecological change of the tax system is also needed, which implies redistribution of the tax burden from work to harmful materials and pollutants (Koštor, 2015). In fact, the scarcity of natural resources and the negative environmental impacts caused by their consumption require the improvement of existing and the discovery of new models for their sustainable use and cleaner production (Stevenson and Evans, 2004). Therefore, one of the basic goals of the EU, through a number of financial instruments and strategies, is to encourage the improvement of the economic system in terms of more efficient use of resources and energy. When all this is observed from the point of view of circular waste management, it is necessary to know the following (Pavlović, 2016):

- 1) *Why we need it* – the circular economy is seen as a practical solution to the planet's resource crisis. Reserves of key resources such as rare metals and minerals are declining and exploitation costs are rising. The current model of a linear economy results in an increasing amount of waste. As much as 90% of the raw materials used in production become waste before the product leaves the factory, and 80% of the product is thrown away in the first six months of life. This, combined with growing geopolitical tensions and supply risk, contributes to volatile commodity prices. The circular economy could stabilize some of these issues by separating economic growth from resource consumption.
- 2) *It is more than recycling* – recycling offers limited opportunities as recycling processes are energy intensive and generally reduce the value of materials. The circular economy goes beyond recycling because it is based on a renewable industrial system geared towards waste design.

Recycling requires more energy than required by repair, reuse, remanufacturing, and the goal is not only to design a product for longer life, but also to reduce energy consumption.

- 3) *Brings savings and reduces harmful emissions* – by preventing waste generation, eco-design, waste reuse and similar measures, companies in the EU have achieved net savings of approximately 600 billion. € (which is 8% of annual turnover), and annual greenhouse gas emissions would also be reduced by 2 - 4%. For example, in the reuse, remanufacturing and repair sector, the cost of remanufacturing mobile devices could be half as low if it were easier to dismantle. If 95% of mobile devices (older generations) were collected, this could create savings of more than a billion euros on the cost of materials in production.
- 4) *It creates new jobs* – there are several niches that have potential, which certainly includes the field of education, from general to specific areas of business education. Ecodesign and eco-innovation will be areas of great potential, as new products need to be developed that will be longer lasting and easier to repair, and the area of new ICT-based services offers unprecedented opportunities. As for employment, calculations show that 10,000 tons of waste that does not go to recycling creates one job, recycling creates 36, and repair or conversion creates as many as 296 jobs. So this is a concept that will provide 600,000 jobs at EU level by 2030.
- 5) *It is not feasible without the support of the state and broad public participation* – the rapid use of opportunities and solving the challenges of the circular economy depends on the broad support of society. Fostering the circular economy requires comprehensive policy support at EU, national, regional and local levels as a coordinated approach, in implementation. For example, goals in waste prevention, encouraging eco-design, introducing eco-taxes, promoting products that are easier to process and the like. The involvement of non - governmental organizations, business and consumer organizations, trade unions, academia, research and development institutions and other stakeholders is crucial.

Prerequisites for the transition to a circular economy are (Pavlović, 2016):

- environmental reform of the tax system
- the sale of services instead of the sale of products, for example after the sale of a product, the obligation to dispose of it as waste is also assumed
- development of new financial products, incentives for financial institutions
- multilevel governance to mobilize the potential of European money by public administration
- green public procurement
- development of waste management system
- formation of the market of secondary raw materials as a precondition for long-term sustainability of the waste management system
- remodeling of industrial systems according to the model of ecosystems
- innovation in new technologies for eco-innovation
- new product design as a prerequisite for product redesign and reuse
- design, implementation and development of new business and market eco models
- development of new live balance sheet models
- change of business culture, priorities, consumer habits, organization of society
- education, which includes upbringing and education

The circular economy offers a new model (product - waste - product). The main source of economic growth is the greatest possible reuse of materials from products that have completed their lifespan with as little use of new resources.

The basic message of the circular economy model is "don't think about waste, but think about the product", ie how it is designed, how recycled it is, how it is produced and how harmful its production or the product itself is to the environment. The products are designed so that they can be easily reused, disassembled, repaired or recycled while using renewable energy sources.

## **2.1. Waste management, recycling and the circular economy**

The basic thesis of the circular economy requires us to reconsider our attitude towards the product and the production resources from which it originated. Recycling is the process of separating material from waste and reusing it for the same or similar purposes. The process involves collecting, separating, processing and making new products from used items and materials. It is important to separate waste by type because most waste materials can be reused if collected separately. We manage waste because of caring for the health of all of us and the quality of our lives, because of the importance of balancing all elements of the environment and nature, because of the impact on financial stability and value of our assets and everything else that affects living and non-living nature (Pejčić Bilić, 2016) . The definition of waste can be observed through three basic elements:

- 1) Technically – a product that is no longer needed / desired but can be useful for someone else
- 2) Legal – any object or thing that the possessor wants, intends or must reject
- 3) Economic – a product for which processing must be paid or waste is charged

It is necessary to clearly identify all producers, holders of waste, types and quantities of waste and current methods of treatment, and the resources needed for waste management are: financial - investments; technical - equipment, technical knowledge and support; staff training - knowledge and skills; public information and communication with industry). Anything that can be reused, rather than thrown away, is a raw material for recycling. Recycling achieves the following goals (Zhu and Huang, 2005):

- 1) Saving of raw materials – all materials are of natural origin and can be found in nature but in limited quantities
- 2) Energy saving – no energy consumption in primary processes, while the combustion of non-recyclable materials produces additional energy
- 3) Environmental protection – waste materials degrade the environment, while recycling takes care of the protection and preservation of environmental quality
- 4) Creation of green jobs – processes in recycling and eco-design of products require knowledge and work which creates the need for new jobs

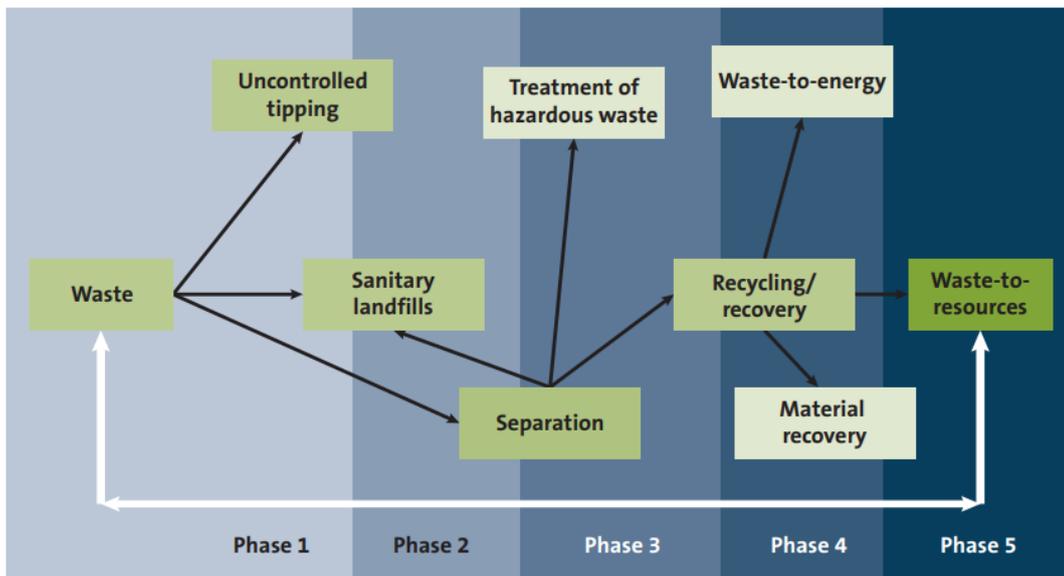
The circular economy refers to an industrial economy that is consciously a consequence of the use of renewable energy sources, which seeks to exploit renewable energy sources, reduces and seeks to eliminate the use of chemicals and waste generation. An important segment in the circular economy is waste management, while production processes should be designed in such a way that waste from one process becomes a raw material for the same or another production process (Pejčić Bilić, 2016). What is commonly considered waste becomes a valuable resource.

## **2.2. Modern waste management for the circular economy**

Crucial to building an advanced waste management model is a clear and credible strategy that must not be influenced by political atmosphere and election cycles, involving all actors in the national economy directly or indirectly involved in waste management, directly involving the population and institutions to achieve long-term positive results. It is a process based on all those involved in developing a strategy for building a waste management model.

Based on Germany's many years of experience in introducing a circular economy, five phases have been defined in the process of improving the waste management system (MWGP, 2016):

- Phase 1 – disposal of waste in uncontrolled landfills
- Phase 2 – reliable waste collection and landfill improvement
- Phase 3 – introduction of separate waste collection and sorting
- Phase 4 – improving the recycling industry
- Phase 5 – circular economy, waste as material and energy resource



*Figure 1: Overview of modern waste management  
(Source: Modern waste Goals and Paths, Berlin, 2016., pp. 8.)*

The first step for modern waste management is to create a framework based on legal regulations, established and implemented by state institutions. Then it is necessary to plan, implement and finance the infrastructure for waste management, and to introduce a socially acceptable way of covering costs.

### 2.3. Reuse of used products

Encouraging the exchange and reuse of end-of-life products in the Republic of Croatia is prescribed by the Waste Management Plan measure 10, which includes any procedure by which a product designed and constructed to meet the minimum number of life cycles or reused for the same purpose which is intended or for some other function. Reuse procedures may include (PGO, 2017):

- restoration: return of the product to a satisfactory working condition
- repair: correction of a specific defect in the product
- resale: resale of a used product or parts thereof
- re-production: return of the product to the initial specifications
- upgrade: upgrade the product to achieve better performance compared to the initial ones.

Measure 10 of the Waste Management Plan envisages the provision of so-called "Reuse corner" where citizens can bring things they no longer need, and other citizens (lower property status) can take those things for further use. The plan is defined to achieve a significant change in the perception, awareness and habits of the general public, it is necessary to design a campaign with an audible key message such as "Used but not fully used".

A number of measures are envisaged to follow the activities of establishing common areas (reuse and repair centers) that serve to collect, classify and/or repair used products, and connect with charities that could reuse these products. It is planned to establish active cooperation with craftsmen (repair services) and then donate to social institutions. In addition, it is necessary to adjust the legislative framework in such a way that the recovery of certain types of waste, extending the shelf life of certain products and their placement on the market can function smoothly.

### **3. CIRCULAR ECONOMY OF SMALL AND MEDIUM ENTERPRISES**

For economic entities, from any economic activity, which operate according to the principles of socially responsible business, we can say that they have implemented a system of circular economy. Around the world, there is a growing awareness of socially responsible business operations, ie operations in accordance with environmental protection. In the world economy, the need for resources, energy and agricultural products is rapidly expanding, resulting in real problems with the circular economy and sustainable development. Therefore, small and medium enterprises are of great importance in the circular economy because they reduce the processes of large serial production, and produce better quality products by applying the concept of socially responsible business. Large companies also have a responsibility for sustainable development and environmental protection, but at the same time, due to their economic power and their recognizable brands, they have a great impact on consumers and competition. It is therefore necessary to raise consumer awareness of renewable energy sources, the circular economy, recycling and recycled products. While SME can have multiple impacts on sustainable development, they have a major impact on the reuse of used products, their repair, finishing or conversion, as well as the use or consumption of recycled products. The development of small and medium enterprises is the driver of economic development, and at the beginning of the circular economy leads to the creation of new jobs through sustainable development while preserving the environment, which are becoming basic factors in modern economic development. The measure of the development of the national economy becomes the extent to which the circular management model has been developed and implemented. Sustainable design of the product range refers to the elimination from the offer of products that are not environmentally friendly or are produced from raw materials that are not enough in nature, and encourages the production and purchase of recycled products. For example, SME in the textile industry have a significant impact on raising awareness of sustainable development and environmental protection by producing clothing from acceptable raw materials, such as organically grown cotton. In the textile industry, changing fashion creates the problem of creating current stocks of clothing and footwear, and there is a problem of storing such goods. The solution to this problem is in sales. The sales are based on price reductions. Factory sales, design of outlet centers, delivery of clothing and footwear to resellers, smaller entrepreneurs who redesign or repurpose such goods and sell such goods without a brand name at lower prices can also be mentioned as a solution (Sagetlija, 2016). In Croatia, some measures have been taken to reduce clothing and footwear as waste, but the system of further treatment of collected clothing and footwear is not fully operational. The quantities of textile waste that are collected separately or separated from municipal waste are relatively small. It is estimated that a high percentage of textile waste is still disposed of through the disposal process, especially that contained in mixed municipal waste. Separately collected waste textiles are exported or recycled, but the waste textile management system is not sufficiently developed (PGO, 2017). That is why small and medium-sized entrepreneurs have independently appeared on the market of the textile industry, collecting unwanted clothes and footwear, then reshaping it and creating

a "new" product from recycled materials, clothes. A good example from practice is the Rotary<sup>1</sup> club Split Plus, which in May 2016 organized a fashion show under the slogan "bring the old, take the new, build an apartment and close the circle." Old redesigned clothes could be bought at the show, which was undesirable until recently, but the designers turned it into something completely different, while all the money raised was donated for the renovation of an orphanage. Although this was an example of a highly humanitarian character, it was shown through the redesign of fashion how the fashion industry can contribute to environmental protection through recycled clothing and jewelry. Worn-out and unwanted clothes have created real fashion masterpieces, and the need to popularize the circular economy in which new values can be created from waste has been pointed out. The implementation of such an economic model, by applying the principles of the circular economy, opens up great opportunities for the development of small and medium-sized enterprises, which greatly contributes to the sustainable development of the economy. In developed circular economies, the legislation obliges manufacturers to apply the principles of circular economy, as business according to the principles of sustainable development without harmful effects on the environment. However, some companies buy their worn-out and damaged products on their own without legal coercion, and repair, redesign or use them for parts of future repairs, all for the purpose of reducing waste. Such activities act directly on consumers, on their awareness of environmental protection and encourage the purchase of recycled products. By changing the awareness and perception of consumers about recycled products, progress can be made in developing a circular economy model, in fact sustainable development and environmental protection. Also, great progress will be made when consumers of higher wealth status themselves start buying recycled products and/or products with a higher economic impact, as a social pattern of responsible living.

#### **4. CONCLUSION AND DISCUSSION**

The circular economy represents the possibility of accelerated development, job creation and sustainable development. It requires the application of new technologies and modernization of society, greater involvement of all economic entities, change of awareness and current patterns of behavior, and change of the current model of linear economy into a circular economy. Peng et al. (2005) studied barriers to the promotion of clean technology in SMEs and found that external barriers, political and financial barriers should be highlighted rather than the exclusive emphasis on technical and managerial barriers. Eco-design refers to the systematic inclusion of environmental aspects in the design of the production process and the final product. It encourages companies that are very environmentally polluting to create more integrated, efficient and sustainable production methods through innovative environmentally sustainable product lines (Negny et al., 2012). Hu et al. (2011) propose the ecological utilization of leather waste for a circular economy model. While for companies in the electrical and electronics sectors, eco-design following a circular management model involves proactively addressing environmental impacts at the earliest stage of a product, such as a development process to minimize negative environmental impacts throughout a product's life cycle. A survey of 36 Chinese electrical and electronics manufacturers found that there is little evidence of eco-design in their products (Yu et al., 2008). However, this is where the great potential for the development of small and medium enterprises according to the model of the circular economy lies. Small and medium-sized enterprises, in their manufactories, can take over worn-out or defective electronic products and then repair them or use their parts for the purpose of repair and reuse. This encourages green consumption, green consumption because it facilitates the use and purchase of environmentally friendly services and products (Geng and Doberstein, 2008).

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<sup>1</sup> Rotary is an international association of business people who are committed to humanitarian goals, value and promote high ethical principles in business and private life, and spread good spirit and understanding around the world

This type of waste management encourages the development of companies that can play a major role as cleaners, taking over waste and decomposing it, using waste resources from both producers and consumers, and then transforming or recycling them back into the system (Geng and Cote, 2002) to achieve an industrial ecosystem and sustainable economic development. By applying the concept of industrial symbiosis through small and medium enterprises, by improving the performance of the environment, a reduction in total production costs can be achieved at the same time. This is explored by Chertow (2000) for cooperative resource flow management in relation to the geographical grouping of enterprises through eco-industrial parks. In the agricultural sector, the eco-agricultural system resembles an industrial symbiosis aimed at the use of by-products and crop and livestock waste (Yin et al., 2006). Stahel's concept (1986) is interesting for the sustainable development of the economy through small and medium-sized enterprises, proposing the formation of a rental system as a functional economy (Zhu, 2005). Which leads to the creation of new jobs through the design of service centers. In the area of waste management, urban symbiosis should be encouraged. Urban symbiosis is an extension of industrial symbiosis. Similar to industrial symbiosis, urban symbiosis is based on the synergy of opportunities arising from geographical proximity through the transfer of physical resources (waste materials) for environmental and economic benefits (Geng et al., 2010). Activities include environmentally friendly products and equipment, environmental testing and analysis, use of recycled waste, recycled materials, use of green technology and green products, and restoration and protection of natural ecosystems (Dong and Fan, 2005; Wang and Huang, 2006). This leaves great opportunities for the development of small and medium enterprises that are the drivers of economic development (Vinšalek Stipičić, 2019). The circular economy is becoming the only possible sustainable model of management. Innovation and smart solutions are pillars of the European Development Strategy. These are the preconditions for the international and global competitiveness of the Croatian economy. Greater effects are achieved if it is possible to create conditions for the interaction of all participants, and it is necessary to encourage activities and measures of such action. The introduction of the circular economy model contributes to less environmental pollution and preservation of natural resources, which enables a better quality of life and a more secure future, through the sustainable development of the Croatian economy.

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## QUALITY COSTS IN SOME EUROPEAN BOUTIQUE HOTELS - A CASE STUDY OF CRACOW AND ZAGREB

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### ABSTRACT

*The aim of the article is to diagnose the problem of quality costs in boutique hotels in specific times of the global Covid-19 pandemic. For the correct implementation of the research objectives, the example of boutique hotels in selected resorts in Poland and Croatia was used. The following research methods were used to achieve the objectives of the publication. In the theoretical part - an analysis of the boutique hotel literature and a comparative analysis. The authors used a questionnaire to verify the hypotheses. A representative group of boutique hotels from both cities participated in the survey. Research results indicate that the Covid-19 pandemic has had a noticeable impact on the cost of quality in boutique hotels in Krakow and Zagreb. The issue of quality costs in boutique hospitality is raised by organizations operating in this industry on the Polish and Croatian markets. The Covid-19 pandemic affected both the quality of hotel services and the level of costs incurred (including quality costs). Quality costs are significant for the operation of hotels in Poland and Croatia. Future research should focus on expanding the group of analyzed entities to include hotels from other European countries. The authors presented creative research on the specificity of quality costs in an international perspective. Comparing the cost of quality in boutique hospitality in two different tourism markets yields interesting research results.*

**Keywords:** *hospitality, global pandemic, quality costs, services, historical monument*

### 1. INTRODUCTION

Boutique hospitality is gaining more and more popularity in the world. The unique atmosphere and the unique stay offer, combined with the growing customer expectations, constitute a successful mix. The element connecting the supply side with the demand side is primarily of high quality. The aim of this article is to present the problem of quality costs in the boutique hotel industry during a global pandemic on an international scale. To achieve the goals, the authors compared the boutique hotel markets in Cracow and Zagreb. The authors also sought to explore the quality costs of the hospitality sector at the current time of the pandemic in two different locations. The research hypotheses are based on the assumption that the contemporary economic situation related to the global pandemic has clearly had an impact on the costs of quality in both of the cases discussed. For the purposes of verifying the research hypothesis, the authors used a questionnaire. The study ad hoc participants were randomly selected managers and owners of hotel facilities in Cracow and Zagreb. The research results positively verified the research hypotheses.

The main reason for conducting the research was the desire to fill the cognitive gap in the field of comparative analysis of urban boutique hotels in two foreign cities. Furthermore, the choice of the subject of the publication is based on the personal scientific interests of the authors.

## **2. THE ROOTS AND DEVELOPMENT OF THE BOUTIQUE HOTEL INDUSTRY**

The beginnings of the boutique hotel industry date back to the turn of the 1970s and 1980s. The first boutique hotels were built in Great Britain and the United States. Later, they began to appear in other countries of western Europe, and then also in other parts of the world. The Blakes Hotel in London is commonly considered the first boutique hotel in Europe and the world. This luxurious, intimate facility was opened in 1978 on the initiative of British actress Anouska Hempel. Over the years, A. Hempel has been involved in the creative interior design of hotel rooms and contributed to the significant development of boutique hospitality in other parts of Europe (Enz, 2009). More boutique hotels began to emerge in the USA. In 1984, the Morgans Hotel opened in Manhattan in New York City. In 1986, two more facilities appeared on the map of the American boutique hotel industry, the Bedford Hotel in San Francisco and the Paramount Hotel in New York. In 1988, the Royalton Hotel in New York also joined. The listed facilities can be considered pioneering in the history of global boutique hospitality (Stodghill, 2007). In 1984, the term "boutique hotel" finally appeared in the world literature. It was introduced into the colloquial language of the American entrepreneur and hotelier Steve Rubell. The author likened the Hotel Morgans in New York, which he had opened, to a small boutique. This term was meant to distinguish a small hotel from large facilities in the relationship between a shop and a boutique and a large department store. The terminology used also introduced a clear distinction between boutique hotels and, as a rule, large chain hotels of a homogeneous nature (Balekjian, Sarheim, 2001). The synonymous terms of boutique hotels are design hotels or stylish hotels. However, they should not be treated as absolute synonyms of boutique hotels. The emergence of boutique hotels was an attempt to introduce to the market a difference from the monolithic hotel chains known for years, such as Hilton or Marriott. Chain brands offer a recognizable style in all facilities in the world. Contrary to them, boutique hotels are small objects, focusing on the uniqueness of architecture, décor, or services. These are also objects that definitely try to be remembered by their visitors (Schoellgen, Kunz, Salzer, 2019). Boutique hospitality is one of the youngest areas of hospitality. It is a relatively new and at the same time constantly developing type of tourist offer. It is also a clear proof of changes in behavior and fashion in the contemporary tourism market. Unlike large chain hotels, it is a small hotel with its own, original style and atmosphere with a hint of eccentricity. It offers its guests unique and targeted services. The main difference between traditional affiliated hotels and boutique hotels is also offering guests a high level of luxury, comfort, and aesthetics in a cozy, family atmosphere (Buchanan, 2016). The precise definition of boutique hospitality is often difficult. In the world of professional literature, a boutique hotel is most often defined as a hotel of a high standard (categorization) that meets the very sophisticated, luxurious, and sophisticated needs of its guests. The target group of recipients of services of this type of hotels are usually wealthy people who value intimacy and peace, avoiding rush. The number of rooms is limited to a dozen, sometimes up to ten. Honestly, a boutique hotel can be considered a facility that meets the following requirements (Anhar, 2001).

- an object entered in the register of monuments,
- the number of rooms not exceeding 100, and often less than 50,
- varied architecture of the rooms, usually characterized by style and warmth,
- location in city centers and peripheral,
- hotel categorization \*\*\*\* and \*\*\*\*\*,
- facility not included in international hotel organizations.

Boutique hotels of the standard \*\*\*\*\* standard can also be classified as luxury hotels, although they are not the only category here. A boutique luxury hotel is also distinguished by the following characteristics:

- offering only the highest quality services,
- the highest price level,
- provision of rare and unique services,
- the services offered are distinguished by a high level of aesthetics and splendor,
- having a well-known, historical brand,
- historicity.

The growing popularity of boutique hotels means that many newly emerging hotels use the word "boutique" in their names or advertise themselves in the media as a boutique hotel. Such behavior is dictated by the desire to emphasize the intimacy of a given facility, follow market trends, or distinguish it from the competition. Often in the tourism market you can find boutique hotels with modern architecture, \*\*\* categorization, or lack of room architecture differentiation. Sometimes a boutique hotel is also a mix of several facilities, not all of which meet the boutique criteria. Such objects can be considered boutique sensu largo (Le Fort, 2022).

### 3. BOUTIQUE HOTEL INDUSTRY IN CRACOW AND ZAGREB

Cracow and Zagreb are cities of comparable size, both in terms of population and area. Both cities stand out on the market due to their rich tourist value and the developed sector of tourist services. Since 1975, both cities have been working closely together as partner cities. In addition to the similarities, both cities also show their own specificity, resulting from various factors (e.g. location in Europe, the city's rank as the capital of a country or region). Cracow is one of the most important tourist centers in Poland (Bzowski, 2021). Due to the concentration of many historic buildings from the Middle Ages to the present day, the city attracts mainly cultural tourists. At the same time, the importance of business tourism (congresses, fairs) is growing constantly. The increase in the number of tourists stimulates the development of the hotel industry. Cracow is one of the most important centers for the development of boutique hotels in Poland. It was in this city that the first city boutique hotels in Poland were opened. It can be concluded that the Cracow boutique hotel market is still a benchmark for other cities in Poland to follow. The boutique hotel market in this city continues to develop dynamically, due to the considerable potential of historic buildings and the generated demand from tourists. Examples of boutique hotels in Cracow are presented in Table 1.

Name of Hotel	Categorization	Number of rooms	Date of establishment of the hotel
Hotel pod Różą	****	57	1994
Hotel Ester	****	32	1997
Hotel Copernicus	*****	29	1998
Hotel Polski pod Białym Orłem	****	60	2001
Hotel Rubinstein	****	28	2003
Hotel Gródek	*****	23	2005
Ostoya Palace Hotel	****	24	2006
Hotel Stary	*****	78	2006
Hotel Kościuszko	*****	20	2007
Bonerowski Palace	*****	16	2009
Hotel Unicus Palace	*****	60	2017

*Table 1: Examples of boutique hotels in Cracow in 2022  
 (Source: Own study)*

Hotel pod Różą is the oldest hotel in Cracow, which has been operating on the tourist market since the 17th century (Burek, 2000). The facility is located on Floriańska Street, in the former, four-storey, Renaissance palace of Prosper Provany. The hotel has experienced ups and downs in its rich history. After the modernization carried out in the 1990s, the building serves as a boutique hotel. Each floor of the hotel has a unique design, ranging from a representative biedermeier style to contemporary arrangements. The elements characteristic of the hotel in question are stucco with a repeating rose motif, colorful wall polychromes, antique tiled stoves, or wooden parquet floors (<https://hotelpodroza.com/>). Hotel Copernicus is one of the unique boutique buildings in Cracow. The hotel is located in the historic tenement house under the butterfly. The hotel is located on the oldest street in Cracow - Kanonicza, at the foot of Wawel Castle. This is the place where the canon of Warmia, Nicolaus Copernicus, stayed during his visits to Cracow. The historical value of the building and the preserved works of art provide its clients with an exceptional level of comfort and luxury. Two luxurious apartments with frescoes deserve special attention. The guests of the Heraldic Apartment have the opportunity to come into contact with real art. The wooden beam ceiling of the apartment dates from 1370 and the polychromes on the walls date from the 16th century. The testimonies of bygone eras coexist here with bold architectural solutions. Marble bathrooms are part of the bedroom and are covered with a glass roof. Apartment 101, known as the Canons' Suite, is decorated with a magnificent fresco depicting the four Fathers of the Church: St. Jerome, St. Gregory, St. Ambrose, and St. Augustine. The facility was the first in Poland to join the prestigious association of private hotels and restaurants Realis & Chateaux in 2005 (<https://copernicus.hotel.com.pl/hotel-copernicus/hotel/>). Hotel Stary enables its guests to take a unique art history lesson. The building, which has undergone a complete renovation, has retained the architectural remains of several architectural styles: from gothic, through renaissance, baroque, to classicism. The exterior facade was the work of August Plasqude, who rebuilt it in 1823. In the attic, he placed the figure of Mercury, the Roman god of trade, profit, and mercantile, supported on a shield with the initials of the then owner of the house, Alexander Merket. The arrangement of the hotel's rooms uses unique furniture and lighting designs that harmonize with the original parquet floors, oriental carpets, and subtle decorations. The building is adorned with original frescoes from the 15th century, which emphasize the former charm of the place (<https://stary.hotel.com.pl/hotel-stary>). Hotel Rubinstein is located in a historic 15th-century tenement house in Cracow's Kazimierz, at Szeroka street 12. The hotel is adjacent to a tenement house in which Helena Rubinstein herself lived years ago, the first lady of the world cosmetics business. Here is where the Rubinstein Hotel is derived from its name. The living quarters offer, among others, marble bathrooms, half-columns between windows with floral motifs, wooden ceilings or 16th-century polychromes. The rooms are equipped with furniture in the style of Louis XVI. Each of the apartments has a different name, including the apartments of Helena, Artur and Koltrin (<https://rubinstein.pl/>). In its rich past, Hotel Gródek was an early medieval defensive structure and the seat of Alderman Albert, the leader of the rebellion of Cracowburghers from 1311. Archaeological work at the site has revealed traces of settlement dating back to the 11th century, as well as numerous items currently on display in the hotel museum. Today, this intimate establishment offers a variety of rooms ranging from Renaissance to contemporary. The advantage of the hotel is also the access to a stylized and cozy library, equipped with numerous old prints and a library (<https://www.donimirski.com/hotel-grodek>). Zagreb, the capital of Croatia, is a city of rich anthropogenic qualities and high tourist value. The city's architecture includes a well-preserved medieval architectural layout with elements of baroque and contemporary architecture. The rich offer of museums, exhibitions, theaters, libraries, and galleries as well as cyclical cultural events makes the Croatian capital a center of cultural tourism. More than 1/3 of domestic companies (including Pliva, Konzum, and Ledo) are located in Zagreb, which generates over 50% of the

domestic turnover. For this reason, the city is also a national center for business tourism. The city belongs to the centers of the highest concentration of high-class hotels in the whole country. Among the many types of hotel facilities on the map of the Croatian capital, there are also boutique hotels. Examples of boutique hotels in Zagreb are presented in Table 2.

Name of Hotel	Categorization	Number of rooms	Date of construction of the building, hotel
Amadia Park Hotel Capital	****	10	1923/2018
Le Premier Boutique Hotel	*****	60	1923
Hotel Puntijar	****	34	1838
Jägerhorn Hotel	***	18	1827
Sundial Boutique Hotel	****	11	2017
Hotel Park45	****	45	2017
Hotel 9	****	20	2013
Indigo Centar	***	5	2018

*Table 2: Examples of boutique hotels in Zagreb  
 (Source: Own study)*

Located in the heart of Zagreb, Hotel Amadia Park Capital is located in the former Croatian branch of the Austrian Wiener Bank-verein. The building was built between 1921 and 1923. It was designed by the famous Viennese architects Ernst Gotthilf and Alexander Neumann in a mixture of Art-Deco and Art Nouveau. The rooms are decorated in a similar style. The Capital Restaurant & Bar offers regional and Mediterranean cuisine. In the hotel premises, guests have at their disposal, among others, a stylish cafe, two conference rooms and an exclusive gift shop. The vault and safe are still in the basement with the original security door of the Viennese company F. Wertheim & Co., A.G. Vienna. The hotel has been operating since 2018 (<https://www.amadriapark.com/>). The luxurious Le Premier Boutique Hotel is located in the center of Zagreb. It belongs to the most luxurious hotels in Zagreb. It is housed in a 20th century palace that has been converted into a luxury boutique hotel with 60 rooms and a presidential suite on the top floor. Its elegant façade conceals a royal interior design with modern rooms with high ceilings and large windows. The hotel bar has a warm décor with wooden floors, hand-restored furniture, amber and marble decorations, and a rich selection of alcoholic beverages. The Thémaé City Spa spa center offers unique tea treatments (<https://www.lepremier.hr/>). The Puntijar Hotel is located far from the centre of Graani district. The hotel dates back to 1838, and its name refers to the name of the owners of the Puntijar family, whose roots date back to the 16th century. The advantage of the facility is the guaranteed peace and quiet. The Stari Puntijar restaurant of the hotel has a long tradition and serves traditional Croatian specialties. Hotel furnishings, furniture, paintings, and books are part of the family heritage and come from all parts of Croatia and from different historical periods. The carefully selected and restored antique furniture make the interior of each room original and reflecting various historical periods and artistic trends, from the Renaissance, Baroque, Neo-Baroque, Rococo, to Art Nouveau, give each room a unique charm and timeless character. In addition to unique decorations, each room has its own name. Named after family members, Croatian princes and kings, and saints, each hotel room carefully preserves their memory. The hotel guests have a library with 500 titles at their disposal. In its rooms there are historical books, books about famous national and foreign authors and encyclopedias, available to every lover of good books (<https://hotelpuntijar.com/>).

The Jägerhorn Hotel is one of the oldest hotels on the tourist map of Zagreb. From the very beginning, it became a social and cultural icon of the capital. His regulars were Ljudevit Gaj and Ban Josip Jelačić. The stylish cafe attracts with its unique atmosphere. Each of its rooms is uniquely shaped and sized, with traditional royal blue and beige fabrics selected to complement a combination of contemporary and recycled furniture, giving it a blend of elegance, style, and functionality. The interior was finished with a mixture of Croatian abonos and oak reminiscent of the upper part of the city. The end result is a unique synthesis of warm, traditional elegance and style (<https://www.hotel-jagerhorn.hr/en/>).

#### **4. RESEARCH METHODOLOGY**

The purpose of the research was to test the level of knowledge of boutique hotels and their commitment to quality value during the Covid-19 pandemic. To achieve the objectives, the authors used the method of a questionnaire as a research tool. The questionnaire was divided into two blocks of closed type questions, which were structured as follows.

- Block I – Impact of the Covid-19 pandemic
- Block II - Quality costs

The basic thesis assumed in the considerations is the assumption that the contemporary economic situation related to the global pandemic has clearly had an impact on quality costs in hotels. Analysis of the contents discussed in the theoretical part of the paper enables one to make certain hypotheses, which may help explain the investigated problem:

- H1: The Covid-19 pandemic has affected the quality of hotel services provided.
- H2: Quality costs are of interest to boutique hotel managers in Cracow and Zagreb.

The questions in block I allow us to identify the general view on the impact of the Covid-19 pandemic on the quality of hotel services. Investigation on quality costs are of interest for the boutique hotel managers who provide the second part of the interview (block II). The research was conducted in February 2022 on the territory of two European cities that are attractive tourist destinations in Poland and Croatia - Cracow and Zagreb. The research group consisted of 22 hotel facilities, 11 selected boutique hotels in each city. The authors chose private entities. This selection of subjects for research was deliberate and determined by the possessed possibilities of access to information in these subjects. It should be noted that the examined hotels constitute a small fragment of the analyzed reality, therefore, drawing far-reaching conclusions is unjustified. However, the results and conclusions presented may constitute the basis for a further detailed research in hotel services in the near future. The authors are very careful with the results obtained.

#### **5. RESULTS**

The results of the research carried out in Cracow and Zagreb hotels are presented in the following part of the work. The feedback obtained from 22 entities allowed to determine the size of the surveyed organisations and their share in the sample. The largest part of the surveyed group are small and medium-sized entities, whose share is at the level of 82% (41% each). The large hotel facilities account for 18%. Entities operating on the market for at least 11 years (64%) dominate, 36% are hotels with less than 10 years of service. The representatives of the surveyed facilities during the research were people holding the following positions: director 36%, sales manager 32%, hotel manager 14%, marketing manager 9% and owner 9%. The main goal of most of the organizations analyzed is to provide the highest quality services to customers and ensure their satisfaction (64%). 18% of the respondents indicated the maximization of profits, an increase in sales revenues by 9%, and cost optimization by 5%, as well as the increase in the efficiency of the management systems.

The distribution of responses for both locations is interesting. All hotels in Cracow have declared that providing the highest quality services is their main goal. There is much greater variety in this regard among hotels in Zagreb. The responses to block I have been collected in this part of the work. It should be noted that, according to the vast majority of boutique hotels, the Covid-19 pandemic had an impact on the quality of their services (91%). The impact of the pandemic is noticed by all the facilities located in Zagreb, while two organizations appeared in Cracow with a different opinion. The authors asked respondents about the dimensions of the services affected by the pandemic. Figure 1 presents the responses obtained.

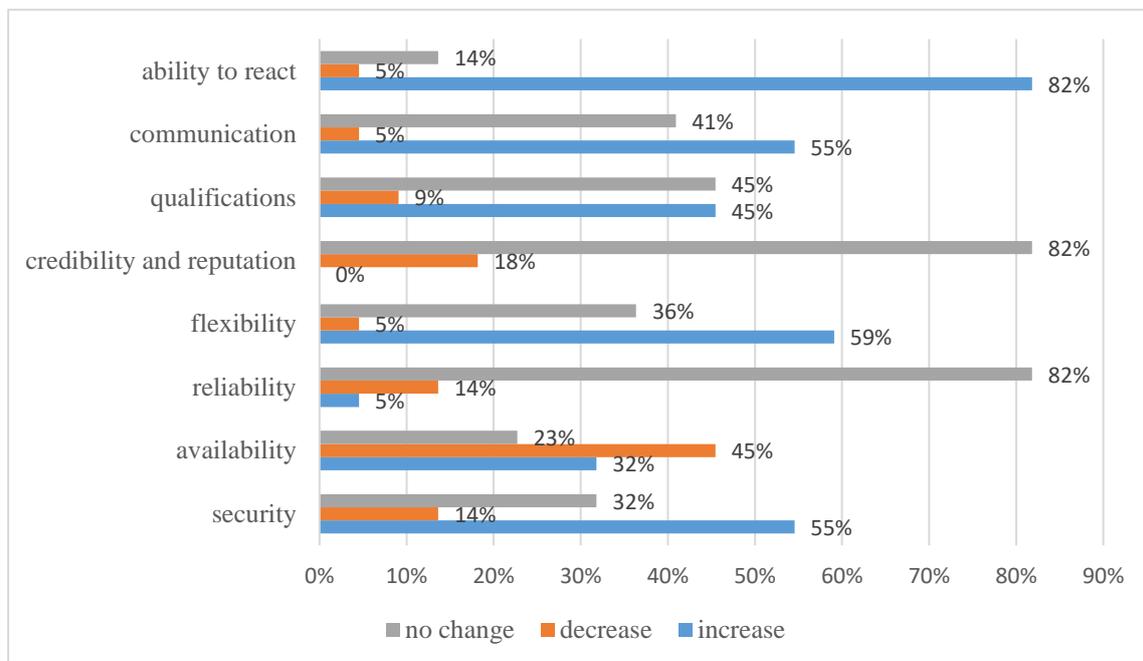
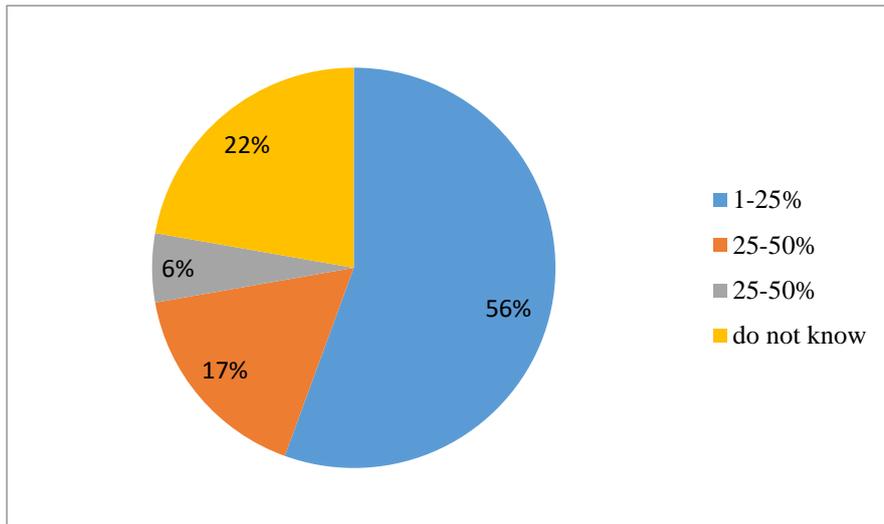


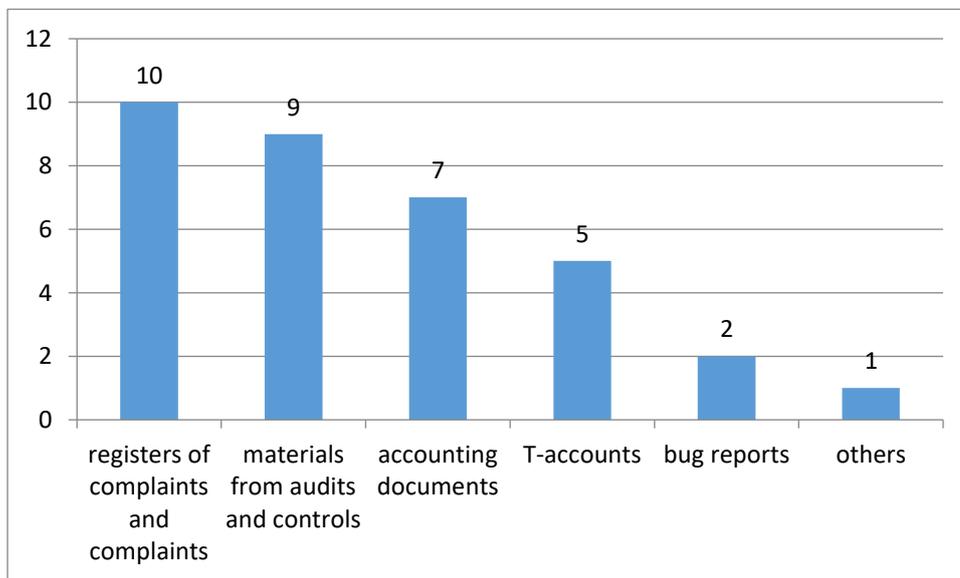
Figure 1: Influence of the pandemic on selected dimensions of the quality of hotel services  
 Note: own elaboration

The biggest changes caused by the pandemic occurred in the following dimensions: ability to react, flexibility, security, and communication, in which there was an increase. On the other hand, the greatest negative changes in the quality of the services provided were mainly observed in the field of availability. The dimensions of the services that have not changed are primarily: reliability, credibility, and reputation. Respondents from Polish hotels have a much more diverse view on the subject, and much greater unanimity as to the impact of the pandemic on various dimensions of services is found in the responses obtained from Croatia. The crisis related to the pandemic will increase the prices of hotel services in the near future. This is confirmed by the responses of 64% of the surveyed facilities that plan to raise prices. The vast majority of them are located in Cracow (10), only 4 in Zagreb. Such a large disproportion may be the result of a different economic situation in Poland and Croatia, as well as a different policy applied by hotel facilities in both analyzed cities. Most of the organizations in the research group (77%) forecast that the resulting financial losses will be able to be recovered in the period of 1-5 years. For 14% of entities, losses are irrecoverable and 9% will work with them for up to 12 months. 68% of hotels believe that the current situation with Covid-19 will affect the development and health of boutique hospitality in the future. 18% say otherwise and 14% do not have an opinion on this matter. Responses to Block II have been collected and presented in the next paragraph. The problem of quality costs is identified in more than a half (59%) of the surveyed hotels. The authors also asked about the estimated level of quality costs in the cost structure of these companies. The answers obtained are shown in Figure 2.



*Figure 2: Estimated share of quality costs in the cost structure of the surveyed organizations  
 Note: own elaboration*

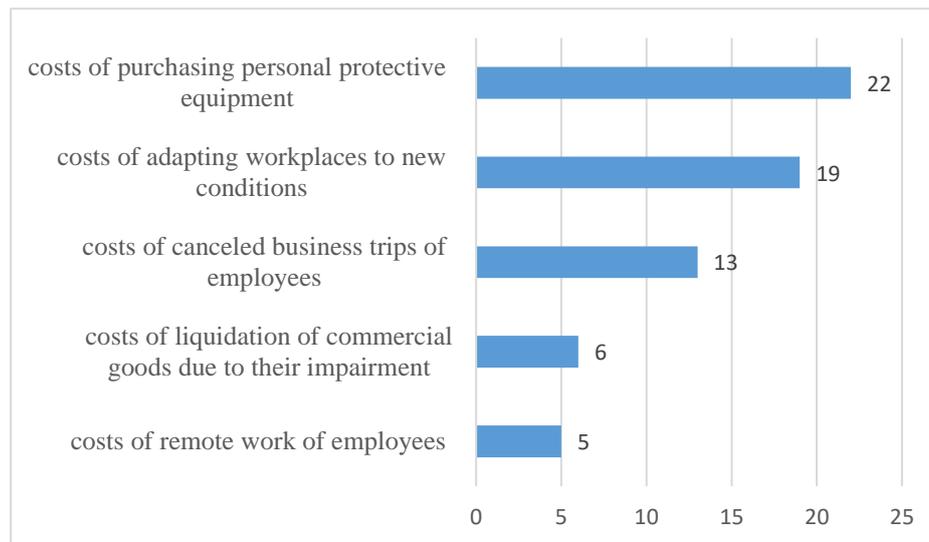
The analysis of the figure shows that quality costs constitute a share of no more than  $\frac{1}{4}$  (56%) in the cost structure of the surveyed organizations. In 17% of facilities, it is at the level of 25-50%, and in 6% of units it is more than half of all costs. 22% of the respondents were unable to indicate the possible level of quality costs. Croatian hotels have a dominant share not exceeding  $\frac{1}{4}$ , and in Polish hotels - 25-50%. The answers obtained to the next question allow us to formulate a statement that quality costs are not kept in most boutique hotels (61%). Only 22% of enterprises record costs related to quality. The rest do not have such knowledge on this topic (17%). The authors also tried to identify the sources of information on quality costs in the studied entities. Figure 3 presents the results obtained.



*Figure 3: Sources of information on quality costs  
 Note: own elaboration*

The most important sources of information on quality costs are: registers of complaints and complaints, materials from audits and controls, accounting documents and T-accounts. Among Cracow hotels, accounting documents and accounts, i.e. sources related to the company's accounting system, dominate, while in Croatian hotels they are primarily registers of complaints

and complaints, materials from audits and controls. Respondents were also asked about the increase in quality cost levels in their organizations due to the new customer service guidelines in the Covid-19 era. 56% answered this question affirmatively and 44% negatively. The nature of the results for Cracow and Zagreb is varied. Managers of boutique hotels in Cracow see an increase in the level of quality costs caused by the pandemic; such an increase is not seen by the majority of representatives of facilities located in Zagreb. In connection with the previous question, the authors decided to obtain information on the categories of additional costs incurred by organizations in relation to the Covid-19 pandemic. The responses are summarized in figure 4.



*Figure 4: Additional costs incurred due to the Covid-19 pandemic*  
*Note: own elaboration*

All facilities tested incurred additional costs related to the provision of personal protective equipment (masks, gloves, disinfectants, ozonators). 19 out of 22 hotels also indicated the costs of adapting workplaces to the new conditions (partitions, plexiglass casings). In more than half of the surveyed facilities, there were also costs of canceled business trips of employees (canceled nights, hotel stays, plane flights, advances, or prepayments). Six hotels additionally incurred costs of liquidation of commercial goods due to their impairment, and five additionally incurred costs of remote work of employees (purchase of IT equipment, coverage of electricity costs). The respondents were also asked to indicate the largest costs related to the operation of hotel facilities. The dominant cost is employee costs (19 out of 22 hotels), the second largest cost is utilities. In the last question of Block II, the authors asked for an opinion on the impact of the Covid-19 pandemic on the level of costs (including quality costs) in the coming years. The responses obtained indicate that the hotel industry is expecting an impact of the pandemic on the level of costs (77%). 18% are of the opposite opinion, and such a forecast cannot be indicated by 5%.

## **6. CONCLUSION**

The research results obtained allowed the authors to verify the research hypotheses. The H1 hypothesis concerned the impact of the pandemic on the quality of hotel services. In boutique hotels located in Croatia and Poland, the dominant belief is that the Covid-19 pandemic has affected the quality of services. The greatest changes were observed in the dimensions of services such as ability to react, flexibility, security, communication, and availability. In addition, the pandemic will be a catalyst for the rise in hotel prices in the near future.

Based on these results, the authors decided to adopt the H1 hypothesis. The hypothesis of H2 that quality costs are of interest to boutique hotel managers in Cracow and Zagreb was verified by the responses to block II. These responses indicate that the quality cost problem is identified by more than half of the objects examined. The interest in this subject is also confirmed by the research conducted by Zanini Gavrančić (2007) and Bruža and Rudančić (2020). The estimated share of quality-related costs throughout the cost structure is 1-25% for most of the organizations surveyed. Quality costs in most boutique hotels are not taken into account. Similar results were obtained in his study by Drljač (2019). Monitoring quality costs is of key importance in hotel management in the 21st century, as argued by (Rudančić et al., 2019), therefore the lack of their records can be very worrying. The most important sources of information on these costs are: registers of complaints and complaints, materials from audits and controls, accounting documents and T-accounts. In more than half of the hotels surveyed, new customer service guidelines increased the level of quality costs. Additional costs were incurred for the provision of personal protective equipment, adaptation of workplaces to new conditions, as well as in connection with canceled business trips of employees, liquidation of commercial goods and remote work. The vast majority of respondents believe that the impact of the pandemic on the level of costs in the hotel industry will be visible in the coming years. The responses presented allow the adoption of the H2 hypothesis. The purpose of the article was to present the problem of quality costs in the boutique hotel industry during a global pandemic on an international scale. To achieve the objectives, a questionnaire was used as a research tool. The research was carried out in selected boutique hotels in Cracow and Zagreb. The research hypotheses for H1 and H2 have been positively verified. The presented research results allow the formulation of the following conclusions. The issue of quality costs in boutique hospitality is raised by organizations operating in this industry in the Polish and Croatian markets. The Covid-19 pandemic influenced both the quality of hotel services and the level of costs incurred (including quality costs). Pandemic costs in hotel facilities are primarily those related to the purchase of personal protective equipment, adapting workplaces to new conditions, and canceled business trips. Hotels do not keep records of quality-related costs, but are aware of the long-term impact of the pandemic on the cost structure. To sum up, it should be stated that quality costs are of interest for hotels in Poland and Croatia. Future research should focus on expanding the group of analyzed entities to include hotels from other European countries. An attempt to implement the quality cost accounting model in hotel organizations located in the most touristic European cities such as Athens, Barcelona, Madrid, Paris, and Rome also seems to be a legitimate research direction.

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## IMPORTANCE OF THE ENGLISH LANGUAGE FOR TOURISM PROMOTION IN THE CROATIAN CONTEXT

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### **ABSTRACT**

*Tourism, as the sum of the phenomena, interactions and relationships between tourists and hosts, depends on their mutual communication. This communication, verbal and non-verbal, takes place in many different ways. The most important one is by language, written and oral. The knowledge of foreign languages, especially the English language, is considered to be a competitive advantage in all branches of the economy, and this particularly applies to tourism. Promotion, accompanied by good marketing communication plays a significant role in successful development and advancement of tourism. Just as there is no tourism evolution without promotion, there is no promotion without communication. The knowledge of foreign languages, especially the English language, is considered to be a competitive advantage in all branches of the economy, and this particularly applies to tourism. By the number of people who speak this language, it is the third in the world, probably the most popular foreign language taught all over the world. Croatian public and media space, as well as the field of economy and tourism are filled with an increasing number of English words that, due to new technologies and the western industry, entertainment and fun, but sometimes also just faddishness, are dominating in the domicile language. A large number of English expressions influence everyday speech and many Anglicisms which are infiltrated into the Croatian language slowly replace domestic words. The results of the research conducted proved the hypothesis that in all parts of the tourism sector the use of English terms prevails in relation to their Croatian equivalents. The further trend of arrival of the English language is expected to be even more intensive. There are many reasons for that: further development of technology, the growing influence of Anglo-American culture and competence of both young and older people in the English language.*

**Keywords:** *communication, English language, foreign languages, promotion, tourism*

### **1. INTRODUCTION**

Despite the global crisis which is affecting the world today, world tourism is constantly growing, and so is in Croatia. Though Croatia's contribution of travel and tourism to GDP (% of GDP) fluctuated substantially in recent years, it tended to increase through the 2000 - 2019 period ending at 25.1 % in 2019 (<https://knoema.com/atlas/Croatia/topics/Tourism/Travel-and-Tourism-Total-Contribution-to-GDP/Contribution-of-travel-and-tourism-to-GDP-percent-of-GDP>) thus having a major impact on the overall economy in the country. Therefore, tourism is for Croatia the most important economic branch and certainly the most profitable economic activity. Marketing and promotion are important factors which have a great impact on successful development and advancement of tourism. For the evolution and promotion of tourism one of the most important factors is good marketing communication. The most important way of communication, which can be verbal and non-verbal, is definitely using language. In the field of tourism, English is the language most used and most frequently spoken. Therefore, this paper describes some basic facts about this language and its influence that has spread throughout the world, not just in the sphere of tourism, but in all areas of business and

life in general, which is shown by numerous examples. The results obtained by the survey conducted among the wider public show that in all spheres of life, with a special emphasis on tourism, many domestic words are replaced by English expressions.

## 2. TOURISM

The World Tourism Organisation defines tourists as people "travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes" (<https://www.tugberkugurlu.com/archive/definintion-of-tourism-unwto-definition-of-tourism-what-is-tourism>). Speaking about the significance of tourism, according to Bartoluci (2013), over 250 million people are employed today in world tourism, it yields about 5% of overall world consumption and capital investments and makes more than 9% of world GDP. Its importance was recognized also in the Manila Declaration on World Tourism of 1980 as "an activity essential to the life of nations because of its direct effects on the social, cultural, educational, and economic sectors of national societies and on their international relations" (<http://www.univeur.org/cuebc/downloads/PDF%20carte/65.%20Manila.PDF>). So according to these indicators, tourism belongs to the leading economic activities in the world with a tendency of growth. It has a special economic role in the receptive tourism countries which have comparative advantages for the tourism growth, as it is Croatia. Communication that takes place between all persons included in the activities related to tourism travel and stay at tourism destinations is the basis of tourism in general. All activities and services that the hospitality industry include are not possible at all without communication, in the first place communication using language.



Picture 1: The importance of tourism in numbers

(Source: <http://hrturizam.hr/svijetom-u-2015-godini-putovalo-preko-1-2-milijardi-turista/>)

## 3. THE FUNCTION OF COMMUNICATION IN TOURISM PROMOTION

One of many definitions that describes the term communication says: "Two-way process of reaching mutual understanding, in which participants not only exchange (encode-decode) information, news, ideas and feelings but also create and share meaning. In general, communication is a means of connecting people or places. In business, it is a key function of management, because an organisation cannot operate without communication between levels, departments and employees" (<https://www.bartleby.com/essay/Business-Communication-The-Key-Role-Of-Communication-F3CQAMPXQSR>). This paper deals with the use of English words in Croatian context, with special reference to communication in English in the field of tourism promotion. Promotion and communication are highly interrelated and interdependent activities. The promotion itself has to be somehow communicated - whether in written, oral or pictorial form, by sound, motion or otherwise. For everything that is happening, communication is needed.

It is inevitable in all kinds of social relations and in every situation of life of all living and inanimate entities. It is particularly important in interpersonal relations, especially those in today's extremely important sphere of economy - tourism. In the communication process, so-called noises must not come into the communication channel, but it must be clear, known and recognizable to the recipient and without ambiguous meanings, if the original message is to be transmitted truthfully and reliably. Applying these conclusions to the field of tourism and tourism promotion, it is very clear that good communication is one of the prerequisites for the overall successful customer – consumer - guest and host - service provider relation.

#### **4. ENGLISH LANGUAGE**

English is a Germanic language of the Indo-European family. It is extremely widespread in the world, so by the number of people who speak this language, it is the third in the world, after the Spanish language as the second and Chinese as the first, and probably the most popular foreign language taught almost all over the world (<http://www.lingua-soft.hr/blog/10-najrasirenijih-svjetskih-jezika>). It is believed that there are 300 million native speakers of English, 300 million to whom it is the second, and another 100 million, who use it as a foreign language. It is the official language of international and inter-state communication, and is also the official language in many countries, as well as in the European Union and many other world organisations. This is the language most used in science, computing, aviation, diplomacy and tourism. It is also the business language and the language of today's media because half of all business deals in the world are made in English, and it is estimated that 98% of scientific documents are written in this language (<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0238372>).

##### **4.1. Presence of English words in the Croatian language**

As well as all other languages, the Croatian language abounds with English expressions. The reason for this is the impact and the widespread expansion of American and British culture around the world, and hence its impact and influence on other languages. Such an impact affects today all spheres of Croatian public, political, scientific, economic, cultural and private life. People use foreign words for several reasons - sometimes simply as a habit, sometimes because they are more attractive, interesting or effective. Sometimes the cause is that domestic language fails to follow the import ingenuity and does not create fast enough domestic names for new products, and sometimes it is easier and simpler for people to do so and express themselves in English. The first and basic principle of accepting foreign words in the Croatian language system says that, wherever possible, the word of foreign origin should be replaced by an identical domestic word. Only if there is no adequate quality replacement in the Croatian language, the foreign word is welcome. Unfortunately, this attitude of linguists, translators and lecturers in our country is most often stigmatised as language purism and is in no way consistent with the so-called Croatian-English language that is popular today and heard literally everywhere (<https://doublespeakdojo.com/how-common-is-spoken-english-in-croatia/>). Not only are the dictionaries of different languages full of Anglicisms, but the English language also has a significant influence on grammar. For example - in the Croatian language the noun is often used instead of adjectives: *film festival* instead of originally Croatian *filmski festival*, *internet stranica* instead of Croatian *internetska stranica*. More and more experts warn and point to the need of adjusting the spelling according to these English language influences. Some of the words remain in the Croatian language in their original written form, while some assume more domestic expression, either in pronunciation or in writing. Thus, there are those that remained original - such as *wellness*, *outfit*, *fast food*, *babysitter*, *start-up*, *booking*, *stage*, *evergreen*, *web shop*, *juice*, *e-mail*, *fitness*, *jogging*, *lifestyle*, *team building*, *time-out*, *paintball*, *make-up*, *celebrity*, *casual*, *face lifting* and many others - they are pronounced the same as in

English, with a little shade due only to the specificity and the difference between the two languages, but basically are the same. These words in the Croatian language appear in writing in the original form and can hardly be found in the Croatian phonetic form – there is no *lajfstajl*, *timbuilding*, *najtlajf* and similar. The second group of words are those which already got their Croatian form, either in the spoken, or in the written form, as for example: *budget*/budžet, *favourite*/favorit, *sandwich*/sendvič, *weekend*/vikend, *expert*/ekspert, *teenager*/tinejdžer, *exterior*/eksterijer, *interior*/interijer, *cluster*/klaster, *computer*/kompjutor, *client*/klijent, *routine*/rutina, *interview*/intervju, *butler*/batler, *shopping*/šoping, *software*/softver, *hardware*/hardver, *forehand*/forhend, *backhand*/bekend, *summit*/samat, *catalogue*/katalog, *aerobics*/aerobik, *jockey*/džoker, *champion*/šampion, etc. Some of them are originally written and pronounced differently, and some are pronounced similar to English and written differently, in other words, these words are slightly changed in the speech or in the writing. Although there is no field where English words do not appear, these are some important areas where many English words occur and are used more often than Croatian. First of all, technology-based vocabulary, especially computing and all other services related to it, internet, mail etc. is based on the English language and although Croatian linguists are actively trying to find adequate replacements for many English words, there are currently very few of them in everyday use. Many of them are used and written in the original form: *monitor*, *printer*, *portal*, *notebook*, *file and folder on desktop*, and there are also *server*, *laser*, *virus*, *upgrade*, *chat*, *password*, *spam*, *offline*, *online*, *link*, *site*, *blog*, *wireless*, *virus*, *update*, *web*, *print screen*, *touchscreen*, *portal*, *hard disk*. The use of the original English verbs with Croatian pronunciation, usually colloquialisms, is also present and widespread, so in Croatia people will say *downloadati*, *kvotati/quote*, *postati/poste*, *browsati/browse*, *hakerati/hack*, *resetirati/reset*, *logirati/log*, *guglati/google*, *surfati/surf*, *mejlati/mail*, *četati/chat*, *šerati/share*, *lajkati/like* etc. Another field where the words from the English language have been used for the longest time - since the 1950s is sports and recreation. Terms like *sport*, *dream team*, *knockout*, *playmaker*, *sprinter*, *golf*, *mini golf*, *dribbling* have been in use for a long time and there are new ones used in common everyday speech on a regular basis: *jet ski*, *fitness*, *rafting*, *surfing*, *snowboarding*, *mountain bike*, *bodybuilding*, *powerlifting*, *bench press*. Apart from these examples English terms are used in almost all areas, only some of them are film, music, politics, media, etc. In many cases, there is in fact no adequate Croatian word for a particular term. Thus Anglicisms, which are infiltrated into the Croatian language, slowly displace domestic words, and their use in everyday speech is increasing. Further trend (*trend* is also an English word) of arrival of English expressions is expected to be even more intensive. There are many reasons for that: further development of technology, growing global influence of Anglo-American culture and growing competence of both the young and the older generations in the English language.

## **5. ENGLISH AS THE "ORIGINAL" LANGUAGE IN THE FIELD OF COMMUNICATION IN TOURISM**

As Croatia is a tourism receptive country, better and more adequate education about tourism and English language in all professions would have contributed to more successful communication possibilities between hosts and visitors. That could enable a better image of the country as a tourism destination, which is important and has a significant impact on the whole economy of the state. The lack of knowledge of the English language is considered to be a competitive disadvantage in all branches of the economy, and this particularly applies to tourism. Viewing tourist promotional materials of all kinds - prospects, leaflets, brochures, announcements, advertisements and price lists, printed, as well as those on-line, it is noted that they are dominated by the expressions in English, or better to say, many English terms are actually mixed with the text that is written in Croatian.

### **5.1. Most frequently used English terms in Croatian language in the hospitality industry**

The hotel industry sector as well as other hospitality facilities and services abound with English expressions. A logical reason why is that so is that this type of facilities and establishments are visited not only by local people but also by foreign tourists, people who do not speak or understand the local language. Therefore, in some *hotels* or *bars* the *dress code* is obligatory. Apart from the ordinary hotel *bar* there are also: *aperitif bar*, *beach bar*, *hobby bar*, *hobby club*, *lobby bar*, *snack bar*, *cocktail bar*, where *shakes* or *cocktails* are offered. Hotels offer *buffet* breakfast and for the evening guests are invited to a wide range of various evening entertainments of *night life* - *dancing terrace*, *night club*, *night show*, *dance party* with a *band*, or with a *DJ*. There is a possibility to order *room service*. The basic contents of some accommodation facilities include *wellness*, *beauty salon*, *fitness*, *acqua park*, *jet ski*, *whirlpool*, *windsurfing*, *surfing*, *rafting*, *workout*, *aerobics*, *bodybuilding*, there are *jogging* runways and *trekking* tracks. Likewise, many names of accommodation facilities are in English (although also in some other languages) in order to attract foreign tourists. So, the foreign name of the accommodation itself (hotels, motels, camps, villas or resorts) is a part of the promotion. A well-known tourist resort near the city of Zadar has an English name: *Zaton Holiday Village*, on the island of Brač there is a *resort* named *Waterman Supetrus Resort*. In the famous tourist village Tučepi, the tourist *resort* Afrodita is advertised as *bluesun Afrodita*. There is also *hotel bluesun Alga*, *hotel bluesun Neptun* – these are only some of the many English names of the hotels and other accommodation facilities.

### **5.2. Slogans as an important element of attracting tourists**

According to Pike (2010) the word *slogan* comes from the Celtic term which means "battle shout". The slogans in English are also called *taglines* or *strap lines* (Pike, 2010). Today, when marketing plays a very important role in attracting guests, it is imperative to choose an attractive tourism slogan. All over the world tourism slogans are mostly in English language, and so it is in Croatia, which confirms the previous statement that English is the "basic" language in the field of communication in tourism. As an excellent example, the following can be mentioned: *Vienna – Where History Meets Future* – the slogan which completely describes what Vienna really represents. In Austria and in Vienna this slogan appears mostly in the English language. The former slogan of the Croatian Tourism Board was *Croatia For Better Life*, and the new one is *Croatia Full of Life*, with some derivatives like *Croatia Full of Diversity*, *Full of Energy*, *Full of Flavours*, *Full of Love*, depending on the market niche which it targets. In conclusion, it can be easily noticed that Croatian public and media space, as well as the field of economy and tourism, is filled with an increasing number of English words that, due to new technologies and western industry, entertainment and fun, but sometimes also because of faddishness, are increasingly dominating the domicile language. A large number of English expressions influence everyday speech, primarily that spoken by young Croats, but not just them, as people of all ages can also be heard using English words in specific situations.

## **6. SURVEY**

The survey was sent to persons of different demographic characteristics, considering that most people at some point in life appear in the role of a tourist, or at least somehow come in contact with tourists and elements of the tourism offer and demand. The aim of the research was to find out the attitude of people towards the English language, in the field of tourism, and how frequently English words are used in the Croatian language. The survey was made in the Croatian language and translated into English by the author of this paper.

## 6.1. Description of the survey

The survey consists of 4 introductory multiple-choice questions. It has surveyed a total of 64 people in on-line form. The first two questions are of a general character referring to gender and age. In the third question the respondents had to choose between yes or no if they considered it appropriate to use the English word in the Croatian language where for the same word exists an adequate Croatian term. In the fourth question the respondents are asked how often they use English words in their everyday speech, business and private. After these 4 questions 42 words were offered for which the respondents had to mark if they use the English or Croatian word, assuming that for every word the adequate Croatian term exists. It was noted that in case they use both terms they would mark the one used more often. The words of typical everyday speech were chosen, for which it is known that both English and Croatian terms are used. The majority of these words are in some way connected with tourism and tourism promotion. All of them can be seen in the original survey enclosed in this paper. In the analysis the average for all 42 words is calculated as well as the percentages of the English and Croatian terms used.

## 6.2. Analysis of the survey

**Question 1** - The respondents are asked what their gender is and they can choose between male and female:

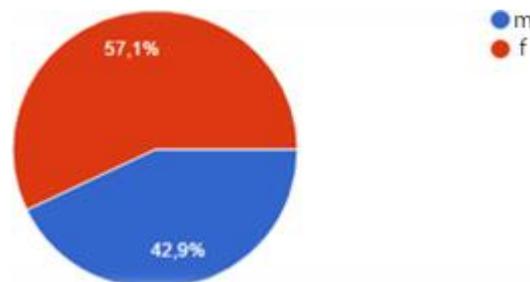


Figure 1: Gender (Source: own research)

Figure 1 shows that out of 64 respondents 57.1% (36) were female, and 42.9 % (28) male persons.

**Question 2** - The respondents are asked what their age is, and they can choose among the following answers: up to 24 years, 25-55 years and 56 years and more.

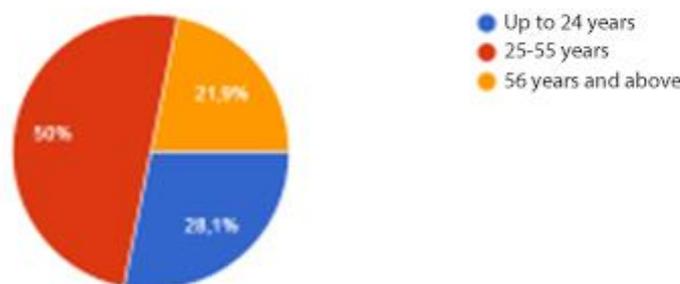


Figure 2: Age (Source: own research)

As shown in Figure 2, 50% (32) i.e. the half of the respondents are between 25 and 55 years of age. There are 18 of them (28.1%) up to 24 years old, while 21.9% (14) of them are over 56 years of age.

**Question 3** – The respondents are asked if they consider it appropriate to use the English word in the Croatian language where for the same word an adequate Croatian term already exists, and they can choose between yes and no.

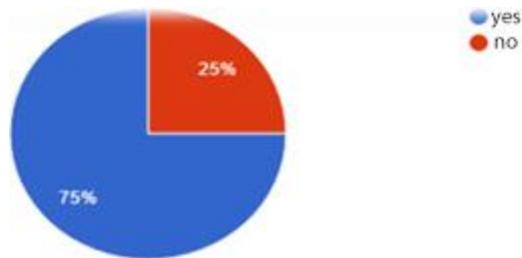


Figure 3: Approval of using English terms (Source: own research)

In Figure 3 it is easily noticeable that two-thirds of the respondents – 75% (48) answered that they consider it appropriate to use the English word where for that word exists an adequate Croatian term and 25% (16) answered negatively to this question.

**Question 4** - The respondents are asked if they use the English words in everyday speech, and they can choose among the following answers: always where possible, periodically, rarely, and never – I avoid it.

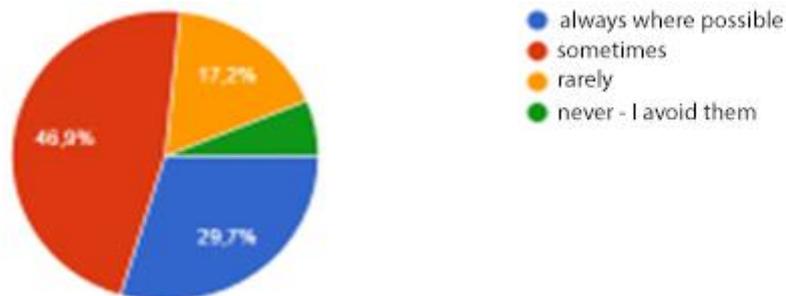


Figure 4: Use of English words (Source: own research)

Figure 4 shows that 46.9% (30) of the respondents use English terms periodically, 29.7% (19) use them always where possible, 17.2% (11) rarely, while the least number of them 6.3% (4) avoid using the English terms.

**Question 5** – The respondents are offered 42 words to choose whether they use the English or the Croatian term more often. The English term is always put first and then the Croatian term as the second.

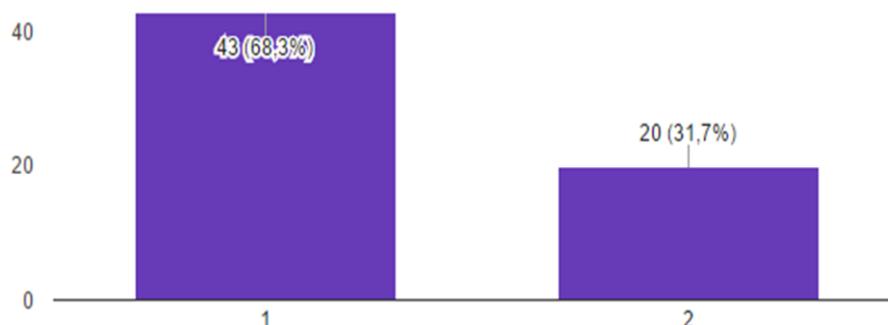


Figure 5: Frequency of using terms in the two languages (Source: own research)

These are 42 English words that were offered in the survey, together with the percentages they have achieved compared to Croatian terms: *wellness*: 88.9%, *resort*: 63.5%, *fast food*: 74.6%, *casino*: 57.1%, *shopping*: 74.6%, *booking*: 62.9%, *O.K.*: 74.6%, *fitness*: 73%, *aerobic*: 74.6%, *body building*: 92.1%, *password*: 65.1%, *smartphone*: 73%, *computer*: 83.9%, *to download*: 68.3%, *jet set*: 71.4%, *jogging*: 55.6%, *business*: 61.9%, *design*: 76.2%, *image*: 74.6%, *link*: 82.5%, *manager*: 77.4%, *marketing*: 83.9%, *band*: 80.6%, *in*: 71.4%, *super/great*: 68.3%, *profit*: 65.1%, *catering*: 84.1%, *upgrade of booking*: 50%, *e-mail*: 90.3%, *interview*: 65.1%, *destination*: 74.6%, *tour operator*: 69.8%, *trekking*: 69.8%, *time sharing facilities*: 66.7%, *web page*: 92.1%, *animation*: 65.6%, *all inclusive*: 84.1%, *show programs*: 55.6%, *grill*: 74.6%, *rent-a-bike*: 66.7%, *room service*: 59.7%, *last minute*: 85.5%.

## 7. DISCUSSION

The survey shows interesting and very much expected results. Half of the respondents belong to the age group from 25 to 55 years, which means that they already have a certain life experience from all aspects, which also applies to their knowledge of foreign languages, as well as the use of English terms in their everyday speech. It can be also easily noticed that two-thirds of them consider it appropriate to use the English word instead of the Croatian term for the same word. A few said that they did not use, or avoided using English terms in their daily speech. This means that the majority of 80% do use English terms as normal in their everyday, private and business speech. In accordance with such opinions are also the final results, when the respondents were asked to choose between the English and Croatian term. Analysing the last question, here are some interesting facts. The area in which English terms are most used is the IT sector, which is understandable and expected. For words like *e-mail*, *web page*, *computer*, *password* and similar, many people normally use the English term, which can be heard and easily noticed in everyday life. The word which achieved the highest percentage of use in English is *web page*, but it is also the same with the word *bodybuilding*, which belongs to the area of sport. As for the terms from the area of tourism, it can be also noticed that for most of the words offered in the survey the use of English words prevailed. The words like *all inclusive*, *last minute*, *wellness*, *catering* achieved over 80% of use in English. The average percentage for words from the sphere of tourism is about 70%. The only word that has an equal percentage of usage is *upgrade of booking*. Not one word in the survey achieved a larger percentage of usage in Croatian than in English. The overall percentage calculated on the basis of the survey shows that 72.6% of the respondents prefer to use an English term instead of Croatian (27.4%). The overall analysis has obviously shown that the surveyed people do frequently use English words for the words for which an adequate Croatian term already exists in their daily speech. The results are expected, as today everywhere and from everybody – younger as well as older people – these English words can more frequently be heard in all spheres of life.

## 8. CONCLUSION

Although the entire world economy and many tourism markets around the world have been affected by the global financial crisis, tourism, as an important branch of the economy, is constantly growing. With some other reasons, this growth is primarily influenced by effective and successful tourism promotion, which becomes more and more intense and important throughout the world, and so is in Croatia, where the tourism industry has an important share in the total GDP and is the most significant export service. Well-designed advertising and publishing are the most effective way to reach possible consumers of tourism services and goods, and that is where a good promotion has to be reflected. It can be also determined that the entire promotion is based on successful communication, as these are two highly interrelated

and interdependent activities. In fact, there is no promotion without communication. In tourism it is of vital importance to communicate well in foreign languages, especially in English. This language is considered as the original language of tourism. Viewing tourism promotional materials of all kinds - prospects, leaflets, brochures, announcements, advertisements and price lists, printed, as well as those on-line, in most of them expressions in English dominate. But it is not so only in the field of tourism – also the other spheres of business and life in general abound with English words, either those original, or those slightly customised to the domicile language. So there is a large number of English expressions that influence everyday speech in Croatia, as well as all over the world. Thus, many Anglicisms, infiltrated into the Croatian language, slowly replace domestic words. The arrival of the English language is expected to be even more intensive. There are many reasons for that: further development of technology, the growing global influence of Anglo-American culture, and the growing competence of both young and older people in the English language. It can be concluded that in all spheres of life and business, as well as in tourism promotion, many domestic words are indeed replaced by English expressions. Considering all above mentioned facts and data, but also listening to how people speak, it can be firmly ascertained that the English language has actually become *lingua franca* of today's world - in other words - the language which crosses all the borders, including the Croatian.

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## *APPENDIX*

### **The survey**

- 1) Kojeg ste spola?
- 2) Vaša starosna dob je:
- 3) Smatrate li prikladnim korištenje engleskih riječi u hrvatskom jeziku tamo gdje postoji za taj pojam hrvatski izraz?
- 4) Koristite li engleske riječi u svakodnevnom razgovoru, i poslovnom i privatnom?
- 5) Označite koji izraz koristite, ili češće koristite:
  - wellness - salon za opuštanje
  - resort - odmaralište
  - fast food - brza hrana
  - casino/kazino - kockarnica;
  - shopping/šoping - kupovina
  - booking - rezervacija
  - O.K.- u redu
  - fitness – vježbanje
  - aerobic/aerobik – vježbanje
  - body building - izgradnja tijela
  - password - zaporka
  - smartphone - pametni telefon
  - computer/kompjuter - računalo
  - download - skinuti
  - jet set - visoko društvo
  - jogging - trčanje
  - business/biznis - posao
  - design/dizajn – nacrt
  - image/imidž - ugled
  - link - veza
  - manager/menadžer - voditelj
  - marketing – promidžba
  - bend - glazbeni sastav
  - in – moderno
  - super/great – odlično
  - profit - zarada
  - catering - dostava hrane
  - upgrade rezervacije - nadogradnja rezervacije
  - e mail - e pošta
  - intervju – razgovor
  - destinacija - odredište
  - turoperator - organizator turističkih putovanja
  - trekking - hodanje planinarskom stazom uzbrdo
  - time sharing - plaćeno korištenje turističkog objekta
  - web stranica - mrežna stranica
  - animacija - zabava
  - all inclusive - sve uključeno
  - show programi - zabavni programi
  - grill - pečenjarnica

- rent-a-bike - najam bicikala
- room service - posluga u sobu
- last minute – u zadnji čas

# AUDIT COMMITTEE AS AN IMPORTANT CORPORATE GOVERNANCE MECHANISM IN STATE-OWNED ENTERPRISES IN THE REPUBLIC OF CROATIA

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## **ABSTRACT**

*Corporate governance structures – management board, supervisory board and general shareholders assembly are the most important segment of the corporate governance system. This applies to all companies, including state-owned ones, which have a special meaning for each country, including the Republic of Croatia. State-owned enterprises are, as a rule, one of the generators of economic growth and development of any society. Therefore, the management structures have a special responsibility to manage all business entities in the best possible way, including state-owned enterprises. Thus the role of the supervisory board is irreplaceable, as is the irreplaceable role of all the committees established by the supervisory board. Among these committees, increasing attention is directed to the audit committee as a supervisory mechanism. This paper aims to elaborate the role of the audit committee as a mechanism of corporate governance in those companies that are owned by the Republic of Croatia.*

**Keywords:** *audit committee, corporate governance, state-owned enterprise*

## **1. INTRODUCTION**

Who is more successful or more competitive, and who is more important – state-owned or private companies, are questions that many practitioners and theorists are trying to answer through a long history of corporate governance. The perception is more or less that private companies are more successful, competitive and efficient than state-owned companies. When it comes to their importance, in principle, state-owned enterprises are considered more important in times of crisis, while in periods of 'normal' economic cycles, all enterprises, whether state-owned or private, are considered equally important in contribution towards economic growth and development. Due to the prevailing understanding that private companies are more efficient than state-owned ones, many state-owned companies - not only in the Republic of Croatia - have gone through a privatization process. Contrary to such views, there are many countries in the world that are supported by state-owned enterprises that initiate and encourage private companies to find and strengthen their market position, thus creating a desirable economic environment for all entrepreneurs. Regardless of which ownership is given priority, it is extremely important that all companies – state-owned and private - follow modern trends in corporate governance and apply them in everyday practice because success of the company depends on people who govern company not on ownership type. In this sense, more and more attention is paid to the audit committee as an increasingly important mechanism of corporate governance without which there is no protection primarily of shareholders, but also of all other interested stakeholders in the corporate governance process. Having in mind the extremely important role of state-owned companies in the economy of the Republic of Croatia, the audit committees of these companies are expected to specifically protect the interests of the Republic of Croatia as their owner. That is why the supervisory function of the audit committee comes to the fore.

## **2. AUDIT COMMITTEE AND CORPORATE GOVERNANCE**

The audit committee's liaison with auditors, both internal and external, and with financial reporting, strengthened that committee's role in the corporate governance process.

The importance of this committee in corporate governance is becoming increasingly noticeable given the steady growth of fraudulent financial reporting and ubiquitous corporate financial scandals. As a barrier to such negative trends, the Audit Committee is increasingly emerging as an important segment of corporate responsibility.

### **2.1. Audit committee as part of the corporate governance process**

The Audit committee is the original Anglo-American corporate governance mechanism that emerged in Europe in the early 1990s. This committee has an important role to play in ensuring high standards of financial reporting (Collier, Zaman, 2005, pp. 754). Today, almost every major European corporation has an audit committee. In the Republic of Croatia, “an entity of public interest is obliged to have an audit committee. The audit committee may be an independent committee or a committee of the supervisory board or board of directors of the audited entity.”<sup>1</sup> The audit committee is one of the supervision mechanisms of the company's management achieved in close cooperation with internal and external audit. Carmichael and Willingham (2000, pp. 508) vividly describe the audit committee as a communication channel of the management structures of firms with external and internal audit. The audit committee is independent in its work<sup>2</sup> and performs the following tasks<sup>3</sup>: reports to the supervisory board or non-executive members of the board of directors on the outcome of the statutory audit and explains how the statutory audit has contributed to the integrity of financial reporting and explains the role of the audit committee in this process; monitors the financial reporting process and submits recommendations or suggestions to ensure its integrity; monitor the effectiveness of the internal quality control system and the risk management system and, if applicable, the internal audit, in terms of financial reporting, without compromising its independence; monitors the performance of legal audits of annual financial statements and annual consolidated financial statements, taking into account all findings and conclusions of the Ministry of Finance; examines and monitors the independence of the audit firm, and in particular the suitability of providing non-audit services and audit committee is responsible<sup>4</sup> for the selection process of the audit firm and proposes its appointment in accordance with Regulation (EU) no. 537/2014. An audit committee established in any company contributes to the effectiveness of external and internal audit, but also to the effectiveness of the management structures. As an independent committee or a committee within supervisory board, it is a representative of the owner of the company to which the auditors are accountable (Soltani, 2009, pp. 94). This status of the audit committee is a consequence of its growing responsibility in the corporate governance system all in order to prevent fraudulent financial reporting and corporate scandals. In this sense, the audit committee is expected to monitor, among other tasks, the risk management system, which means that the focus of its engagement is the future of the company and the care of all stakeholders in the corporate governance system.

### **2.2. Corporate governance as a framework for permanent business efficiency**

Corporate governance system primarily deals with the relationship between management and business owners. The purpose of corporate governance is to increase the performance of the company in order to create a framework for achieving the interests of all stakeholders led by shareholders.

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<sup>1</sup> Audit Act, Art. 65 para. 1, Official Gazette d.d., Zagreb, No. 127/17.

<sup>2</sup> Ibid., Art. 65, paragraph 9

<sup>3</sup> Ibid., Art. 66.

<sup>4</sup> If the audited entity has a nomination committee in which shareholders or members have significant influence and whose task is to make recommendations for the selection of the auditor, Member States may allow that committee to perform the functions of the audit committee. See: Regulation (EU) no. 537/2014 of the European Parliament and of the Council of 16 April 2014 on specific requirements regarding the statutory audit of public-interest entities and repealing Commission Decision 2005/909 / EC, Art. 16 (8), available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0537> [11.4.2022].

Literature and practice have spawned two models of corporate governance - Anglo-American and Continental. "The Anglo-American model of corporate governance, also called one-tier, is based on a single board of directors" (Galetić, 2011, pp. 495). The members of that board are executive and non-executive directors. Executive directors are entrusted with the management function, and the supervisory function is in the hands of non-executive directors. The key goal of the Anglo-American model of corporate governance is to "reconcile the interests of corporate management and the interests of investors (current and future shareholders). The interests of other stakeholder groups are secondary in this system of corporate governance" (Tipurić, 2011, pp. 3). The biggest shortcoming of the single board of directors is the dominance of the executive in relation to non-executive directors, which opens the space for executive directors to make decisions in their interest. The continental model of corporate governance is also called two-tier because it consists of two management levels - the supervisory board and the board. In this model of corporate governance, the supervisory board performs the supervisory function and monitors the company's operations, while the management govern the company and its operations. In the continental model of corporate governance, the dominant position is held by the owners, ie the holders of shares or business stakes. The biggest disadvantage of this model is the modest role of the capital market, while the advantage is the independence of the supervisory board from the management, which discourages the management from making decisions in its interest. The role of supervisory board members in the continental corporate governance model resembles to the role of non-executive directors in a single board of directors in the Anglo-American corporate governance model. In order to perform their tasks more efficiently, a single board of directors and a supervisory board establish - this is what they have in common - various committees, including the audit committee. Regardless of the corporate governance model, they have in common that the audit committee has as many independent members as possible in order to reduce potential conflicts of interests to which management is exposed. Of course, this also applies to the audit committees of state-owned and private companies.

### **3. CRITICAL ANALYSIS OF THE ROLE OF THE AUDIT COMMITTEE IN THE CORPORATE GOVERNANCE SYSTEM OF STATE-OWNED ENTERPRISES IN THE REPUBLIC OF CROATIA**

This paper analyzes the role of the audit committee in the corporate governance system of state-owned enterprises in the Republic of Croatia. State-owned enterprises are legal entities of special interest to the Republic of Croatia and legal entities managed by the Center for Restructuring and Sales.<sup>5</sup> Legal entities of special interest to the Republic of Croatia have been determined by Decision<sup>6</sup> of the Government of the Republic of Croatia. This Decision identified 36 legal entities of special interest to the Republic of Croatia. The Center for Restructuring and Sale manages shares and business stakes in companies owned by the Republic of Croatia, which are not identified as companies of strategic and special interest to the Republic of Croatia, and shares and business stakes in companies owned by the Croatian Pension Insurance Institute and Agency for Deposit Insurance.<sup>7</sup>

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<sup>5</sup> The Center for Restructuring and Sales (CERP), as the legal successor of the State Property Management Agency, was established pursuant to the provisions of the Act on the Management and Disposal of Property Owned by the Republic of Croatia, Official Gazette 94/13, 13/18 and 89/17, which entered into force on 30 July 2013. Available at: <http://www.cerp.hr/o-cerp-u/9> [12.4.2022]. The structure and work of CERP, its scope and public authorities and other issues are regulated by the State Property Management Act, Official Gazette, No. 52/18.

<sup>6</sup> Decision on legal entities of special interest to the Republic of Croatia, Official Gazette d.d., Zagreb, No. 147/21.

<sup>7</sup> As of March 7, 2022, CERP managed shares and business stakes in 237 legal entities in the minority portfolio (up to 50% ownership), while in the majority portfolio (over 50% ownership) it managed shares and business stakes in 15 legal entities. Available at: <http://www.cerp.hr/portfelj-cerp-a/dionice-i-poslovni-udjeli/114> [12.4.2022.].

Based on the Decision of the Government of the Republic of Croatia<sup>8</sup>, the Ministry of Physical Planning, Construction and State Assets drafted and published Guidelines for the work of audit committees in legal entities of special interest to the Republic of Croatia, as well as in other legal entities whose shares, business shares and founding rights are managed by the Center for Restructuring and Sales (hereinafter: Guidelines).<sup>9</sup> The purpose of the Guidelines is to clearly define and strengthen the role and responsibility of audit committees and to contribute to improving and raising the quality of work of audit committees in state-owned enterprises.<sup>10</sup> The guidelines were developed based on best practices within the project "Strengthening the competencies of supervisory and audit committees in state-owned companies" conducted by the Ministry of Physical Planning, Construction and State Assets together with CERP, EBRD, DG Reform and other ministries. In line with their title, the Guidelines are an advisory framework for the conduct of members of audit committees who are expected to perform their duties in the best interests of state-owned enterprises. Prior to the adoption of the Guidelines, the role of the audit committee in the Republic of Croatia was promoted by the provisions of previous versions of the Corporate Governance Code. The new Code of Corporate Governance, applicable from January 1<sup>st</sup>, 2020 continues to emphasize the importance of the role of the audit committee in the corporate governance system, with particular emphasis on the independence of its members.<sup>11</sup> The need to adopt a new Corporate Governance Code as well as Guidelines for the work of audit committees is a consequence of higher expectations from all corporate governance boards in the performance of their duties, including audit committees. In this regard, the audit committee is expected not to be a fashion detail of corporate governance, which is often the case in practice, but its real need (Filipović, Bartulović, Bekavac, 2015) to be able to accomplish all tasks prescribed by the Audit Law. The fact that the audit committee exists in the company and thus formally fulfilled the legal obligation to establish it could never, especially today when all businesses are exposed to numerous challenges of increasingly turbulent business environment, meet the expectations of all stakeholders, especially business owners. Therefore, the Guidelines for the work of audit committees in state-owned companies are welcome, so that the Republic of Croatia, as their owner, can reliably protect its interests in these companies through this corporate governance mechanism. In order to act in the interests of the state-owned enterprise and the owner and to fulfill their tasks, the members of the audit committee should have "the necessary knowledge and skills and an appropriate level of independence".<sup>12</sup> The independence of the members of the audit committee "implies not only the absence of conflicts of interest but also an attitude, such as a willingness to ask complex questions, review existing policies and propose changes where necessary"<sup>13</sup>, In accordance with the Audit Law, the majority of the members of the audit committee must be independent in relation to the audited entity. A person is considered independent if he or she does not have any business, financial, family or other close relationship with the audited entity, its majority shareholder or management, or if there are no other circumstances that question its independence."<sup>14</sup> This Act prescribes fines for public interest entities and its responsible persons if they do not meet the condition of independence.<sup>15</sup>

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<sup>8</sup> Decision on drafting guidelines for the work of supervisory and audit committees in legal entities of special interest to the Republic of Croatia and legal entities managed by the Center for Restructuring and Sales, Official Gazette d.d., Zagreb, No. 46/21.

<sup>9</sup> Available at:

[https://mpgi.gov.hr/UserDocsImages//dokumenti/imovina/Pravne\\_osobe//Smjernice\\_za\\_rad\\_REVIZIJSKIH\\_odbora.pdf](https://mpgi.gov.hr/UserDocsImages//dokumenti/imovina/Pravne_osobe//Smjernice_za_rad_REVIZIJSKIH_odbora.pdf) [12.4.2022.].

<sup>10</sup> Ibid., p. 4.

<sup>11</sup> Corporate Governance Code (2019). Croatian Financial Services Supervisory Agency and Zagreb Stock Exchange d.d., Zagreb.

<sup>12</sup> Guidelines, op. cit., p. 8.

<sup>13</sup> Ibid., P. 12.

<sup>14</sup> Audit Act, op. cit., art. Article 65, Article 65

<sup>15</sup> Ibid., Art. 118, paragraph 1, vol. 10 and 11 and paragraph 2.

The condition of independence, according to the Guidelines, is not met by a person who is a member of the audit committee:<sup>16</sup> 1) if he is related to a significant shareholder or group of significant shareholders or a significant member of the company or a group of significant members of the company by the in-laws of such persons, 2) if he is a government official or government employee, 3) if in the last five years he has been a member of the board of the Company or any related company or if he is a spouse, close relative or in-laws of any member of the board or management, 4) if he has been an employee of the company or any subsidiary or affiliated company in the last five years, 5) if he has been appointed to the supervisory board as an employee representative, 6) if he receives other payments from the company, except for fees received for auditing committee, 7) if it is or if in the last three years it has been in any significant business relationship with the company or its affiliates, directly or indirectly as a partner, shareholder, member of the company, member of the supervisory board or management or member of top management of an organization that has significant business relations with the company, 8) if he is or has been a partner or employee of performed audit or non-audit services to the company or its affiliates, 9) if he has significant relationships with members of the management board, independent of the company (for example, because they are members of other legal entities), 10) if he has been a member of the supervisory board for more than 12 years and 11) if there are other circumstances that call into question its independence. With regard to the above criteria that the members of the audit firm in a state-owned company should meet in order to be considered independent, it seems that some of them can - with good reason - be critically questioned. In this regard, the question may be asked: is the status of a government employee an obstacle to a potential member of the audit committee in fulfilling the conditions of independence? While, in terms of independence, a member of the audit committee has the status of a government official<sup>17</sup>, a barrier to membership in that committee has been established, it is unclear why government employees could not be members of the audit committee. Given that government employees<sup>18</sup> perform tasks within the scope of state bodies, including IT, general, administrative, accounting and similar tasks, it is difficult to find a well-founded threat of potential conflict of interest if appointed as a government employee to the state-owned enterprise's audit committee. Furthermore, the five-year term of membership of the management of a state-owned enterprise or any affiliated company, as well as the fact that someone has been an employee of a state-owned enterprise or its affiliated company in the last five years, give the impression that the five-year period is broad. Finally, it is suggested that a member of the audit committee is not independent if he receives other payments from the state-owned enterprise, other than remuneration received for performing the duties of a member of the audit committee. This is undoubtedly an appropriate criterion, but it has - in the way it was formulated - raised the question: do members of the audit committee who are also members of the supervisory board of a state-owned company meet the independence requirement? It is to be assumed that the Guidelines did not take this situation into account, but in terms of their further upgrading this dilemma should be removed.

#### 4. CONCLUSION

The audit committee, as a committee of the supervisory board or an independent committee, has an important role in the supervision of the management in all, including state-owned enterprises. Given the prescribed tasks it performs, it is an indispensable mechanism of the

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<sup>16</sup> Guidelines, op. cit., p. 13.

<sup>17</sup> Law on Obligations and Rights of Government Officials, Official Gazette d.d., Zagreb, No. 101/98, 135/98, 105/99, 25/00, 73/00, 30/01, 59/01, 114/01, 153/02, 154/02, 163/03, 16/04, 30/04, 105/04, 187/04, 92/05, 121/05, 151/05, 135/06, 141/06, 17/07, 34 / 07, 82/07, 107/07, 60/08, 38/09, 150/11, 22/13, 102/14, 103/14, 3/15, 93/16, 44/17 and 66/19 ., art. 1.

<sup>18</sup> Law on Government Employees, Official Gazette d.d., Zagreb, No. 92/05, 107/07, 27/08, 34/11, 49/11, 150/11, 34/12, 49/12, 37/13, 38 / 13, 138/15 - Decision of the Constitutional Court of the Republic of Croatia, 61/17, 70/19 and 98/19, Art. 3, paragraphs 2 and 3.

corporate governance system in preventing numerous irregularities, primarily financial ones. Its role is growing, especially due to numerous corporate scandals and impaired confidence in financial reporting and external and internal audit. In order to contribute to the financial integrity of the company, it is crucial to ensure the independence of the audit committee as a supervisory board mechanism of the corporate governance process. With the guaranteed independence of the audit committee, preconditions are created for the protection of the independence of external and internal auditors. Independent external and internal auditors are custodians of the integrity of financial reporting. The audit committee provides them with the greatest help in that. This assistance is also reflected in resolving unavoidable conflicts with the corporate management. In an effort to ensure the independence of numerous mechanisms of the corporate governance system in the Republic of Croatia, including the audit committee, we are constantly looking for a regulatory framework that would adequately follow the best corporate practices in the world. In this regard, a new Corporate Governance Code has been adopted. Guidelines for the work of audit committees in state-owned enterprises have also been adopted in order to create a framework for better performance of the prescribed tasks of that committee. The new Corporate Governance Code and the adopted Guidelines are a stimulating framework for the application of best corporate practices. Therefore, it is to be expected that all this will be reflected in more transparent and efficient operations of state-owned enterprises in the Republic of Croatia. Guidelines for the work of audit committees in state-owned enterprises are one of the desirable tools for improving these processes, which does not mean that they cannot be the subject of critical judgment, which was partly the goal of this paper.

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## DIGITIZATION OF CULTURAL HERITAGE-LIBRARY IN THE FUNCTION OF MICROECONOMIC

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### **ABSTRACT**

*Archive, library and museum material content and form are elements of identity, authenticity, tradition, continuity, uniqueness and authenticity, which determine them as national cultural heritage. This material also has a great information potential – the history and development of certain areas, localities, institutions and continuous activities over centuries can be traced back through the preserved material and the user can explore the past of the homeland locality. The cultural heritage of Vukovar is a reflection of the past that we see in the present and we are obliged to preserve it for future generations. Franciscan monasteries and libraries have managed to preserve the rich cultural heritage in spite of fires, war conflicts and devastation. Monastery libraries contain rare and old materials. Library materials are kept carefully in monastery libraries and are important for the future of Croatian culture and preservation of the Croatian written heritage. Physical preservation of the collection, as the history of collection has shown, depends on human engagement and conditions in which the collection is kept. As much as the humans protect it, at the same time, they destroy it by using it. Today's technology enables permanent preservation of materials in collections through the process of digitization. Digitization, once completed, enables using the materials in the collection infinitely without any risks to do harm to valuable units in the collection. At the same time, it enables finding information easily and is an inexhaustible source of knowledge of immeasurable historic value for the future generations. Taking all of the above said into account, we can conclude that cultural heritage digitization of the Franciscan monastery in Vukovar is a priority which will lead to completely different microeconomic characteristics of Vukovar and eventually be a Croatia's cultural step towards European digital area.*

**Keywords:** *digitization, cultural heritage, monastery library, Franciscan monastery, management*

### **1. INTRODUCTION - VUKOVAR – AN OASIS OF CULTURAL HERITAGE AND CULTURAL TOURISM**

Vukovar was named after a small river Vuka, which is called in the old lists *Hiulka, Ukla, Wilcea, Wolcea*. Therefore, Vukovar was also called *castrum Wolcow, Wolco, Wlco, Walcum, Walcow, Wolcovar, Walcovar* (Cvekan, 1980, p.10). The town is situated in the north eastern part of today's Republic of Croatia and is the seat of the Vukovar-Srijem County. It is located between Eastern Slavonia and Western Srijem and lies at the mouth of river Vuka in the Danube. The first records of Vukovar are mentioned in the grant of King Andrew in 1231. Today's Vukovar was referred to as a fortress (Fort Vukovo with Vukovar County). Through its history, Vukovar was under many authorities.

In the first half of the 13<sup>th</sup> century, the area of the Vukovar County (Parish) was under the authority of a *herceg* (Duke) or a *ban* (Prince) of all Slavonia. In the 14<sup>th</sup> century, there was a great turmoil between the Slavic noblemen and the Anjouvians who became Hungarian kings. The Slavonian nobility lost their power; the monopoly of *Bans* was abolished. The Vukovar parish belonged to this area until the arrival of the Turks in 1526. Vukovo fortress remains whole and intact at the arrival of the Turks, so the Turkish army was located there. In the Turkish era, the Franciscans of the Province of Bosnia Srebrena took care of the Catholics in the town. Upon liberation, they quickly organized the religious life and in 1695 they managed the Vukovar parish (Hoško, 1992, p.13). In 1687, Emperor Leopold I occupied Osijek and headed for Vukovar with his army. The Turks, in fear, abandoned the fortress and set fire to all, so that the fortress remained burnt and destroyed after the Turks left. The urban space was gradually being built only at the beginning of the 18<sup>th</sup> century when, after clearing the ruins of Turkish settlements, the urban reconstruction of the baroque town was fixed. Vukovar endured various frequent disasters that have left a visible mark on the city physical structure. It was the plague, earthquakes, floods, and fires in which entire town districts went missing. With the arrival of Maria Theresa at the head of the Austrian Empire, in 1745, three counties were founded in Slavonia: Virovitica, Požega and Vukovar (Srijemska) County with the residence in Vukovar. At that time, the town was growing and developing as a trading, crafts and cultural center. In the 18<sup>th</sup> and 19<sup>th</sup> centuries, Vukovar was pro-European. It had a developed social life according to the European models. Only in the period up to the First World War, there were about 30 clubs - singing, reading, sports and various other clubs had their own reading rooms, organized concerts and parties. The clubs were often organized on a national level. In the period from 1945 to 1990, Vukovar evolved and became one of the most developed towns in Croatia. With a very strong industry, agriculture has also developed, as this area is rich in black soil. During the 1991 Homeland War, Vukovar was a symbol of resistance, heroism and patriotism. Considerably fewer defenders provided a very strong resistance to the Yugoslav People's Army and local traitors for more than three months, just enough time for the rest of Croatia to organize, arm, and prepare to meet the invaders. It is likely that international politics played a part in the fall of the City into the hands of the occupier, which we are sure history will establish eventually. The attacks and occupation destroyed the whole town; there were very few undisturbed facilities. With the peaceful reintegration in 1997, Vukovar began renovating housing objects. The entire economy of the town has stopped and up to this day has not started. Today Vukovar is facing the biggest problem, which is unemployment. Authorities are trying to help the reconstruction, development and progress of the city, but it is a very slow and difficult process.

## **2. FRANCISCAN MONASTERY AND LIBRARY AS A SOURCE OF CULTURAL HERITAGE IN VUKOVAR**

The Library of the Franciscan Monastery in Vukovar began its activity and development at the time of building the Vukovar monastery. The emergence of the library is related to the Franciscans who were deployed to serve in Vukovar. They brought books with them and thus the library started to develop. The creation of the library collection continues mostly by purchasing of books. The priests needed books for preaching and catechesis, as well as for the liturgy. In his work *Knjižnica franjevačkog samostana u Vukovaru* (The Library of the Franciscan monastery in Vukovar), which was published in the proceedings of Ivo Pilar Institute under the title *Vukovar – hrvatska baština i perspektive razvoja* (Vukovar - Croatian Heritage and Perspectives of Development), Friar Vatroslav Frkin writes that there are three documents on the existence of the library in Vukovar. One of them is S. Girolamo: *La vita de Santi Padri*, which mentions Vukovar on the title page. The second is the work of Livio Rabesan called *Cursus Philosophicus*, and the third, by the same author, under the title *Cursus*

*Philosophicus P.2.V.1.* The three mentioned works testify to the beginnings of the Franciscan monastery between 1719 and 1730. The library was located in the eastern part of the monastery, equipped with wooden shelves and cabinets with monastery and parish archives. The books were neatly arranged according to the contents and there was a record made by Jerko Knoblehar in 1944. The Vukovar Library is one of the largest in the entire Croatian Franciscan Province of St. Cyril and Methodius. At the end of the 20<sup>th</sup> century, according to the records of Friar Vatroslav Frkin, there were 17,000 volumes of literature ( Frkin, 1996, pp. 56-60). The library possessed valuable books. Due to the lack of detail on library collections and the library itself, only general information on library literature can be provided. Most of the material was related to various religious and ecclesiastical contents. This included theological and theological-philosophical works, the history of the church, pastoral work, ecclesiastical law and similar material. However, the number of materials with a secular theme, especially in the fields of literature, philology, philosophy, history, education and similar fields, was also significant. A large portion of the fund consisted of textbooks and literature on education because of the fact that in the Vukovar Monastery, over 50 years ago, there was a provincial study of philosophy as well as theology studies. Books of such content were acquired because professors and students of the high school needed them. Librarian care has been carried out through centuries by monastery librarians, as Friar Vatroslav Frkin recorded. These were usually priests, professors, teachers, catechists, and sometimes the monastery abbots. In the war destruction of Vukovar in 1991, the monastery building was severely damaged and completely destroyed. The library rooms were also seriously damaged. The collection was largely saved and subsequently evacuated and preserved. This mission was carried out by Friars Slavko Antunović and Ivan Mikić, who were responsible for saving the library. They organized the whole library and transferred the entire collection to a small basement of Franciscan monastery to preserve it from destruction. About 17,000 valuable books, manuscripts and magazines were stored in the basement. In 2004, by the agreement of Croatia and Serbia, books were returned to Vukovar. They were located on the first floor of the monastery library, on iron shelves, in order to dry out as they have been heavily damaged by moisture. A year later, at the same place where the library was located before, the arrangement of wooden shelves and the work on re-establishing the library begins. The work was led personally by Friar Vatroslav Frkin, starting with the books covering the period from the 16<sup>th</sup> to the 18<sup>th</sup> century and those that were damaged were sent to restoration. Very valuable material of the Library of the Franciscan monastery in Vukovar existed before the Homeland War, including six incunabula, which are specified by Š. Jurić and V. Frkin in the Incunabula catalogue (Jurić&Frkin, 1987, pp. 167-168). At the moment, there are three publications in the Library of the Franciscan Monastery in Vukovar:

- 1) Bonaventura, Sanctus, Egregium opus subtilitate et devoto exercitio precellens parvorum opusculorum doctoris seraphici sancti Bonaventurae. Secunda pars. Argentinae, 1495, Sexta feria ante festum sancti Thome apostoli, format 2°.
- 2) Biblia/Latine/Biblia com glossa ordinaria Wal. Strabonis aliorumq̄ et interlineari Anselmi Laudunensis et cum postillis Nicolai de Lyra... P.II. Venetiis, 1495. Paganinus de Paganinis, format 2°.
- 3) Cicero, Marcus Tullius. De officiis (Comm: Petrus Marsus) Venetiis, 1486. Baptista de Tortis, format 2°.

There are 14 works of old rare books published up to 1600 that have been rescued and the oldest was from 1501. The Library of the Franciscan monastery in Vukovar also had a rich music collection. It was recorded that the library possessed handwritten liturgical songbooks (*cantuals*) and several manuscripts of books by the theology lecturers ( Cvekan, 1980, pp. 116-121 ). Prior to the Homeland War, the Library of the Franciscan Monastery in Vukovar kept four liturgical songbooks prescribed for the Vukovar Monastery, one for Osijek and one

Organum for the organist in its collection of handwritten liturgical song books ( Cvekan, 1980, pp. 118-121 ). The oldest was the liturgical songbook from 1722, which was transcribed by Franjo of Vukovar, a student of the theology in Ferrara, at the age of 30. The songs were copied from the *Cantual* of Father Franjo (Francis) de Budrio; it had 100 pages, bound in leather, size 30x22 cm. The next was the liturgical songbook from 1730, bound in leather, size 30x22 cm. The cover page and the beginning of the *cantual* are missing, but according to the way of decorating the pages, the work was written by Filip Kapušvarac, who was the first organist of a newly opened church (from 1730 to 1732). The *cantual* had 116 pages. Another liturgical songbook bound in black leather, 14x22 cm in format, was written by Friar Antun Sandukčić. The *cantual* contained monophonic songs played by the church organist, and in the end of the booklet, there were several texts of songs sung by the congregation. The liturgical songbook of 1750, in the format of 49x35 cm, contains 294 pages copied by the provisions of the Provincial, Father Josip Janković. The booklet is bound in brown leather. The same *cantual* was written for the purpose of "Finding of the Holy Cross in Osijek" in the same year. The Organum book, in a 23x30 cm format, has been preserved, with 204 pages accompanying all the masses found in the Cantuals from 1750. The library archive of the Franciscan Monastery in Vukovar holds a large number of manuscripts, mostly by Franciscan professors or high school students. Archival material is arranged in 30 boxes and 63 volumes of manuscripts, and the parish archive is made up of 65 boxes and contains about 70 manuscript volumes. The philosophical and theological manuscripts from the 18<sup>th</sup> to the 20<sup>th</sup> century are particularly isolated. The marriage and other writings were preserved from 1746 to 1991. Based on these data, the saved manuscripts and manuscript books, the most important archival material from the Monastery and the Vukovar Parish has been preserved. A certain number of people born in Vukovar distinguished themselves as Franciscan writers and their works have been preserved in the Library of the Franciscan monastery in Vukovar. A further list holds the Vukovar Franciscans who were writers, according to a list located in one of the monastery booklets found in the archives of the *Roman Catholic Parish Office of the Holy Spirit, Nuštar*. It is not possible to determine the actual title or the author of the list or the booklet because of its dismal state and there are no covers or introductory pages.

- 1) Father Roberto Kauk: *Evangelite za sate nedeli (Gospel for Sunday Hours)*, in Bulgarian language; *Zadnji dani Nikole Zrinskoga (The Last Days of Nicholas Zrinski)*, Vukovar 1879; *Zabavno poučn pripovietke (Funny instructive tales)*, Baja 1880; *Gorka muka i teška smrt Gospodina Isus Krsta, (Bitter Anguish and Painful Death of the Lord Jesus Christ)*, Baja 1882; *Judita ili vjera i domovina (Judith or Faith and Homeland)*, Baja 1883; *Milica*, Vukovar 1885, II edition 1888; *Ode, velečasnom otcu Dominiku Kirchmajeru, prigodom zlatne mise (Odes to the Rev. Father Dominik Kirchmajer, on the Occasion of the Golden Mass)*, Vukovar 1887; *Kaznenica, pripoviedka iz života (Penitentiary, a Story from Life)*, Vukovar 1900; *Sabrane pjesme (Collected Poems)* II edition, Vukovar 1894; *Povijest pavlinskog samostana i kaznionice u Lepoglavi (History of the Pauline Monastery and the Prison in Lepoglava)*, Vukovar 1895.
- 2) Father Antun Tomašević: *Govor prigodom prijenosa tijela Sv. Bone iz Rima u Vukovar (A Speech on the Transfer of the Body of St. Bono from Rome to Vukovar)*, 24 June 1754, *Viridianum philosophicum, Zagrabiae*.
- 3) Father Ernest Benešić, PhD: *Institutiones theologicae, Historia ecclesiastica*.
- 4) Father Josip Janković: *Promptuarium Commissarii visitatoris*. Ravenae 1742, vol. I in 4°, *Caeremeniale Provinciae Venetiis*.
- 5) Father Samuel Kocian: *Odaehonoribus Illustrissimi ac Reverendissim Domini Josephi Schrott, Episcopi Belgradensis*. Essekini 1846; *Odae Illustrissimoet Reverendissimo Domino Josepho Schrott*. 1847.

Another important issue, along with the Franciscans of Vukovar who wrote, was the question of the establishment of Croatian Catholic publishing house in Vukovar. On 16 January 1878, under the then “Austrian” emperor, the Catholic clergy of the diocese of Đakovo became involved in the establishment of a Croatian Catholic printing house in Vinkovci. Due to the political problems that have infiltrated this entire situation, everything was suspended on 14 April of the same year. That was not an issue they could stop, so they held a convention in Vukovar by a group agreement and contacted Rome. During the so-called Croatian Catholic Press Convention, on 29 April 1878, it was concluded that the printing company would be established in Vukovar, which was actually the most appropriate place. However, the emphasis was on setting up a popular and comprehensible newspaper “Srijemski Hrvat” (*The Srijem Croat*), which was first issued on 11 May 1878 under the editorship of Dragutin Alth. Thanks, in large part to the Vukovar Reconstruction and Development Fund, the library in the Franciscan monastery was beautifully decorated. A great contribution to the arrangement was also given by Father Benko Horvat, a monastery librarian and archivist. The library space was furnished, and the library was equipped with the necessary shelves thanks to the donations. The most valuable books have already been restored. About 200 pieces of work are still in the restoration process at the Croatian State Archives in Zagreb. The library is partly arranged bibliographically. It is a great wish of Vukovar inhabitants and all of us to have a valuable library to research the entire history of the Vukovar area.

### **3. THE NEED FOR DIGITIZATION OF LIBRARY COLLECTION IN THE FRANCISCAN MONASTERY LIBRARY**

Written heritage has been collected and preserved in monastery libraries with a special attention. In addition to books, the libraries also store other important, diverse and interesting material for researchers. By physically preserving the material, we also ensure the protection of its content, as well as its historical and linguistic values. In order for a researcher, scientist or a user to be able to carry out one’s research, a book must be preserved as close as possible to its original form for the complete transfer of information ( Krtalić et al, 2010, p. 115 ). Throughout the entire history, the Franciscans have succeeded in preserving the written word and tradition of their faith. Nowadays, in the age of rapid development of technology and availability of information, known as the “digital era”<sup>1</sup> the question arises as to how to preserve this tradition for times to come. Being aware of the delicate structures of valuable records, as well as of the search for knowledge of the generations to come, results in the need of “eternal” preservation of heritage, i.e. treasure found in monastery libraries. Today’s technology enables simultaneous use and preservation of library collection. Additionally, it enables one to view, search and save records. End users can search, view and use a record at any moment, without physically taking the library material and thus destroying its structure. Simultaneously, one does not have to leave his working space to access the relevant source of information. Digitization of library collection is precisely what makes this possible. According to the online Croatian Encyclopaedia, digitization means “a conversion of text, images, sounds, moving images (films and videos) or a three-dimensional form of some material into a digital form”<sup>2</sup>. Consequently, such digital form can be processed, stored or transmitted by computers and computer systems. Digitization of publicly owned material that constitutes cultural heritage is conducted and/or funded by the government, scientific or other institutions. Such material includes old books, newspapers, magazines, historical documents and alike, and it mainly originates from library collections, archives or museum collections. Digitized material is made available for use in online databases, the so-called virtual, i.e. digital libraries. Virtual libraries contain bibliographical data on collection items in an all-inclusive catalogue.

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<sup>1</sup> LZ Miroslav Krleža „digitalizacija“ <http://www.enciklopedija.hr/natuknica.aspx?id=68025>(Accessed on December 22, 2021)

<sup>2</sup> LZ Miroslav Krleža „digitalizacija“ <http://www.enciklopedija.hr/natuknica.aspx?id=68025>(Accessed on December 22, 2021)

There is a project in Europe called *Europeana*, which is an online digital library with digitized material from libraries, archives and museums. There are several digitization processes of cultural heritage in Croatia, as follows: *Croatian cultural heritage project* (Hrvatska kulturna baština) – promotes a systematic and uniform approach to digitization of material in cultural institutions, *Digitization of local and cultural heritage* (Glas Podravine) – a newspaper 1950-2007, *Digitized Koprivnica press 1950-2008 and the writer Fran Galović Online*, *Project concerning electronic cataloguing and digitization of the Franciscan monastery library in Trsat*, *Project concerning electronic cataloguing and digitization of the collection of the Franciscan monastery libraries of the Croatian Franciscan Province of St. Cyril and Methodius* led by Juraj Lokmer. Digitization of the collections of the Franciscan monastery libraries of the Franciscan Province of St. Cyril and Methodius encompasses approximately 200,000 items of library material. The aim is to bring together the libraries of all monasteries in the Franciscan Province of St. Cyril and Methodius into one virtual, i.e. digital library accessible by anyone online. The project manager refers to it as “the library of all Croats”<sup>3</sup>. Before the material can be digitized, it has to be bibliographically processed, which the monastery librarians have been doing for many years. Digital collection is entered into the CROLIST library program, which has the state-of-the-art searching method, the so-called FRBR. Apart from this, a digital repository at the Croatian level is required. Until such a repository is built, the users can use the links within the bibliographical data, which lead to other worldwide digital repository containing such material. It should be emphasized that the status of monastery libraries has not been recognized in the Croatian Library Act, so they depend on the expertise and work of numerous volunteers, financial aid of local self-government units, and city and public libraries. During the post-war period, the Library of the Franciscan monastery in Vukovar cooperated with the Ministry of Culture, the Croatian State Archives, the National and University Library, a book bindery from Slavonski Brod, and private companies for the purpose of restoration and renovation as well as to catalogue and bibliographic process the material. Numerous monumental libraries made their collections available for use to the scientific public, so the vision is for the Vukovar Library to be on that list, too. Today, the Fund for Reconstruction and Development of Vukovar, in cooperation with the European Regional Development Fund, provides funding for the reconstruction of the Franciscan monastery and its valuable library.

#### **4. MICROECONOMIC ATTRIBUTES OF CULTURAL HERITAGE INFORMATION PROCESSES**

Informatization of cultural heritage has become an increasingly important microeconomic discipline, which is indispensable to implement market laws in the investment cycles of future economic development. The rapid growth of information activities also enables a strong economic component of the social individual development. The situation significantly alters the quality of changes, which is neither accidental nor temporary. In the microeconomic environment, cultural heritage is undoubtedly a significant attribute whose existence is associated with social system digitization. It is impossible to conduct a proper research of a particular micro location economic-wise without taking the cultural heritage into account. The library of the Franciscan monastery in Vukovar is an exceptional model which we can perform various perturbations on aiming to implement cultural heritage in the wider community. A new approach to the development of the general human need for cultural heritage allows us to place information at the center thus changing the attitude of non-partisan and independent observers towards the cultural heritage, i.e. libraries. If we perceive the information as the most valuable part of the microeconomic analysis, in addition to all tools containing consumers' habits, we

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<sup>3</sup> Pothvat hrvatske franjevačke provincije sv. Ćirila i Metoda i Jurja Lokmera stvaraju se preduvjeti za »knjižnicu svih Hrvata« <https://www.glas-koncila.hr/pothvat-hrvatske-franjevacke-provincije-sv-cirila-i-metoda-i-jurja-lokmera-stvaraju-se-preduvjeti-za-knjiznicu-svih-hrvata/> (Accessed on December 22, 2021)

have to postulate that reliable information must reach future consumers in a very short time. Research of cultural heritage is the highest level of one's cultural state. If cultural heritage is reflected above the regional division, it acquires completely different attributes. Looking at the cost side of digitization, all activities have to be perceived in economic terms through the market segment as well as the laws of microeconomics. The strategic Vukovar development is not possible without implementing the huge cultural heritage - the Franciscan library. With the right approach, we can accurately monitor every economic factor in the digitization of cultural heritage as well as the growth potential of market activities. We can apply analytical and empirical methods used by experienced professional staff and modern databases. In high-probability research, we can set partial criteria for deciding which parts of the Franciscan library in Vukovar should be digitized first. Empirical methods can be used to get the most valuable elements from the Franciscan library, digitize their content in any modern format and through central memory stations and the World Wide Web (based on the Internet protocol TCP/IP) and give access to the general population interested in the described material. When choosing a model, we have to respect all micro economy laws, which can be transformed into macro economy without losing its most important properties. When talking about one's need to master a particular cultural heritage, we have to take into account one's individual characteristics, i.e. such information models that will not destroy one as an individual in terms of cognitive processes and desire to acquire cultural heritage have to be set. Taking all of the above said into account, we can conclude that cultural heritage digitization of the Franciscan monastery in Vukovar is a priority which will lead to completely different microeconomic characteristics of Vukovar and eventually be a Croatia's cultural step towards European digital area.

## 5. CONCLUSION

Librarians in monasteries have always recognized the importance of a treasure hidden in the book covers on shelves in their monasteries. They are aware that not only is the written word associated with knowledge, but also the book itself, with its leather covers, brass clips and ink stains on paper, serving as an evidence of the times past. Librarians are those who guard and defend that knowledge. Nowadays, one wants to guard the knowledge, and what is more, to share it. This requires concentrating on the future and accepting the opportunities given by the new technology. Digitization of the precious collection of the Franciscan monastery in Vukovar would enable scientists and researchers of the new generation to discover new possibilities and create new opportunities for the development of the valuable collection while preserving its original form. Taking all of the above said into account, we can conclude that cultural heritage digitization of the Franciscan monastery in Vukovar is a priority which will lead to completely different microeconomic characteristics of Vukovar and eventually be a Croatia's cultural step towards European digital area.

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## SATISFACTION WITH THE QUALITY OF LIFE IN A HOME FOR THE ELDERLY DURING THE PANDEMIC COVID-19

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### **ABSTRACT**

*The appearance of the SARS-CoV-2 virus caused a pandemic that had a huge impact on life, but also brought about changes in the lifestyle of all the inhabitants of the planet Earth. The pandemic particularly affected the elderly population living in homes for the elderly and infirm. This has caused a number of problems and misfortunes that have been tried to overcome in the best possible way for users of nursing home services. Therefore, there is a need to research satisfaction with the quality of life of home users for the elderly and infirm during the pandemic COVID-19. The research was conducted by empirical testing on a sample of 102 elderly respondents who use home accommodation services for the elderly and infirm. The aim of the research is to find out whether the users of services in the home for the elderly and infirm are satisfied with the quality of life during the pandemic COVID-19. The tasks of the research are to acquire knowledge about satisfaction with instructions and information during a pandemic, feelings of tension, nervousness, fear, depression and sadness due to separation (isolation) from their loved ones. Research on the quality of life of home users for the elderly and infirm during the pandemic showed that respondents are satisfied with the quality of life, have no strong sense of fear, are satisfied with epidemiological guidelines, but not measures because they show extreme dissatisfaction, isolation and inability to visit loved ones. In general, it can be concluded that users of homes for the elderly and infirm are satisfied with the quality of life, but as respondents seem to be a very vulnerable group in society, their quality of life should be frequently checked and improved in every way.*

**Keywords:** *Satisfaction with quality of life, home for the elderly and infirm, pandemic COVID-19*

### **1. INTRODUCTION**

Aging is a part of human life and human nature, so it has always encouraged people to try to understand the causes of aging. The reasons for the growing interest in the study of aging can be divided into three groups (HZZJZ, 2003):

- scientific - the effect that the passage of time leaves on living organisms
- personal - understanding one's own development and age changes
- social - the number of older people is constantly growing and society must focus on studying the needs and planning of care for the elderly

Social age is closely related to chronological age, although both biological and psychological are not independent of chronological age. There are age norms or environmental expectations in society about the behavior of a person of different ages.

Society puts pressure on a person to behave in accordance with his or her age (Despot Lučanin, 2003). We can expect an increase in the share of older people in the general population. Today, great efforts are being made to consider and plan for the care of stretch marks and the infirm. The demands to meet the health and social needs of older people are always greater than the economic potential of society. Assessing the needs of older people is a means of improving the quality of life of older people. Measuring satisfaction with the quality of life in a stretch mark home is much more difficult than when it comes to younger people, especially during a pandemic. Quality standards are defined as a requirement placed on a particular service or procedure that represents best professional practice or achieves customer satisfaction. Each individual experiences changes that occur with age, directly or indirectly, consciously or unconsciously, fast or slow, weak or intense. Psychological stress in aging can result in common changes, psychological discomfort, but also signs of some acute or chronic illness. Health professionals who are in the immediate vicinity of users have a great role in recognizing stress, anxiety and finding an adequate solution (Pejčinović, 2001). It is mostly a call from the user's family and after that the stress level is reduced. In institutional care, the area of quality of life is intertwined with the quality of social care and the quality of health care. Care is less important to users, and the feeling of home is more important (O'Reilly, Courtney and Edwards, 2007). That is why homes for the elderly and infirm are irreplaceable institutions for the care of very old people who are no longer able to take care of the most basic needs of life, and do not have any help from their relatives. Homes for the elderly and infirm provide care for the elderly and infirm outside their own families, and as part of permanent accommodation they provide comprehensive care that includes accommodation, nutrition, personal hygiene, health care, work activities and the use of free time. However, the pandemic COVID-19 has caused a global pandemic, which has significantly changed living conditions in homes for the elderly and infirm. This raises a number of questions about whether users of nursing home services are deprived of social rights and whether the quality of life during the pandemic remained satisfactory.

## **2. SATISFACTION WITH THE QUALITY OF LIFE OF USERS OF THE HOME FOR THE ELDERLY AND INFIRM**

Quality standards are defined as a requirement placed on a particular service or procedure that represents best professional practice or achieves customer satisfaction. It is known that the certification of organizations, overtaking the business quality system, lead to the satisfaction of all internally influential groups. Many managers of organizations and companies in Croatia, as well as their employees, are not aware of the importance of quality management (Vinšalek Stipić & Bošnjak, 2015). Homes for the elderly and infirm belong to a special category of social services in which, in addition to the long-term accommodation service, which also includes the food service, health care and nursing services, as well as social services and occupational therapy services are provided. Some elderly and infirm people come to live in specialized social care homes to achieve the satisfactory quality of life they lack due to their incapacity. Although the quality of life in homes for the elderly and infirm is a relative term because the experience of quality is subjective for users of long-term accommodation in specialized social institutions. Therefore, we strive to objectively investigate the satisfaction with the quality of life of service users in the home for the elderly and infirm. A high level of quality and its continuous improvement is primary for all business processes, which puts the organization's leadership in front of new challenges, primarily how to manage quality while respecting the sustainability of the global environment. Therefore, it can be concluded that quality management is an integral part of the management function and it is necessary to establish policies and adopt quality plans in order to increase satisfaction with the quality of life of the wider community (Vinšalek Stipić, 2020).

From the above, there are key problems regarding the quality of life in homes for the elderly and infirm, because satisfaction most often arises from subjective reasons, but to be sure it is necessary to investigate in advance. This paper seeks to explore satisfaction with the quality of life of home users for the elderly and infirm and satisfaction with the provided health and social services, and nutrition and care services. The appearance of the SARS-CoV-2 virus caused a pandemic that had a huge impact on life, but also brought about changes in the lifestyle of all the inhabitants of the planet Earth. The pandemic particularly affected the elderly population living in homes for the elderly and infirm. This led to a series of problems and adversities that were trying to overcome in the best possible way for the wards of homes for the elderly and infirm. There is a need to research satisfaction with the quality of life of home users for the elderly and infirm during a pandemic.

### **3. RESEARCH METHODOLOGY AND RESEARCH RESULTS**

Opinions can often be heard in the public that services in homes for the elderly and infirm are not of satisfactory quality. Precisely because of the above, and in accordance with previous practical experience and knowledge, the aim of this research is to investigate whether the quality of life in homes for the elderly and infirm at the time of the pandemic is satisfactory. Based on the set goal, it is necessary to answer the following questions through empirical research: Is the quality of life in homes for the elderly and infirm at a satisfactory level? To what extent is satisfaction with the quality of life in nursing homes related to responsible behavior during a pandemic?

#### **3.1. Hypotheses of the research**

Satisfaction with the quality of life in old age is highly subjective. Satisfaction with the quality of life in a home for the elderly and infirm is a result of the quality of social services provided to users of accommodation and appropriate additional care services in the home. Therefore, this paper seeks to investigate how satisfied the users of home services for the elderly and infirm are with the quality of life during the pandemic, expressed through the quality of services provided and how much satisfaction with quality of life is related to subjective (personal) factors. In accordance with the above, and previously defined problem and subject of research, the basic scientific hypotheses are set:

- H1: Satisfaction with the quality of life of service users in the home for the elderly and infirm during the pandemic is at a satisfactory level of service quality
- H2: Satisfaction with the quality of life of home care users for the elderly and infirm is significantly statistically related to responsible behavior during the COVID virus pandemic

Hypothesis testing sought to reach scientific knowledge and conclusions about the satisfaction with the quality of life in a home for the elderly and infirm during the pandemic COVID-19. The quality of services provided to social service users is a reflection not only of the quality of the institution in which the service is provided but also of the development and progress of the whole community. Although the experience and satisfaction with the quality of life in a home for the elderly and infirm is a subjective reflection of the user who uses the service. In this research, satisfaction with the quality of life in a home for the elderly and infirm was measured by satisfaction with provided health and care services, satisfaction with nutrition and tidiness of the home, and satisfaction with all staff and speed and efficiency of resolving complaints from home users. The degree of satisfaction with the quality of life of service users in a home for the elderly and infirm was determined as a dependent variable in the set research hypotheses. When testing hypotheses, the degree of satisfaction with quality was measured using a list of questions about satisfaction with services provided in the home. In hypothesis H1, the independent variables were expressed as a weighted average for each service in the observed

sample as satisfaction with health and care services, then satisfaction with nutrition and tidiness of the home and satisfaction with all staff, speed of resolving complaints of home service users. For hypothesis H2, the independent variable is the degree of responsible behavior of home service users for the elderly and infirm during a pandemic. Based on the set tasks, goals, hypotheses and defining variables, we tried to consistently conduct research to reach scientific knowledge and conclusions based on recommendations, opinions and conclusions for future research on the level and satisfaction with the quality of life of users of services in the home for the elderly and infirm persons.

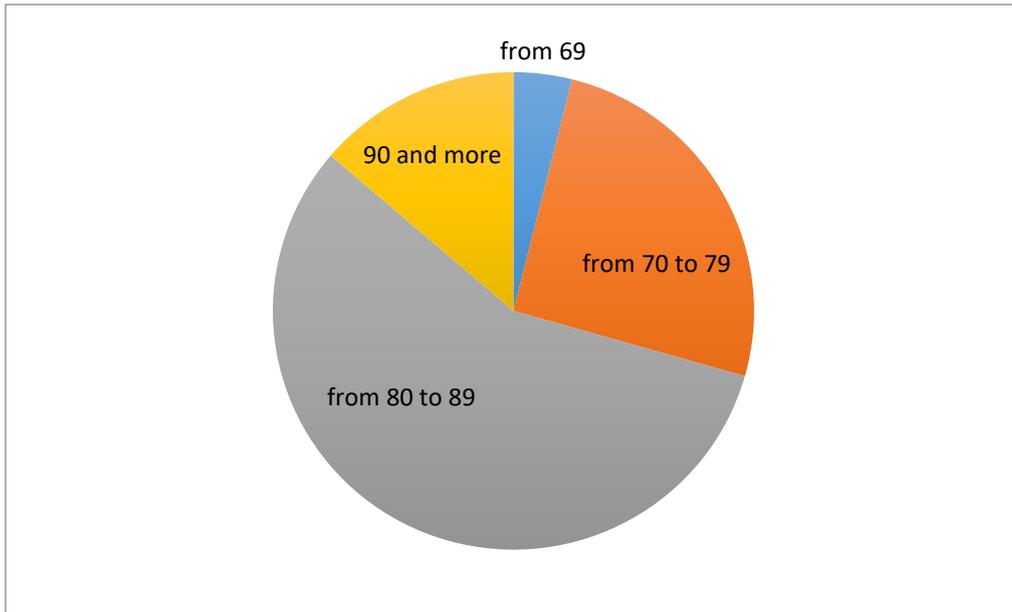
### **3.2. Sample and research methods**

The implementation of this research required a systematic and objective approach to the research problem due to the need to consider satisfaction with the quality of life of service users in a home for the elderly from the point of view of service users. Analysis of the situation, the current level of satisfaction with the quality of life of users of homes for the elderly and infirm was conducted on a sample of 102 respondents who use the services of the Home for the elderly and infirm in Sibenik. Data were collected by the survey method and logical and analytical procedures were used in their processing in order to be able to draw conclusions for the selected research population based on the established findings. The survey was completely anonymous, while the questions were constructed with the offered answers of the Likert intensity scale with four intensities of agreement or disagreement, where the intensities are as follows: 1 - satisfied; 2 - I am partially satisfied; 3 - can always be better; 4 - I am not satisfied. For some questions from the survey questionnaire, scaled answers were offered as follows: 1 - rare; 2 - sometimes; 3 - often; 4 - mostly. The age of the respondents is from 65 to 90 and more years. The survey was conducted in person in the period from June 1 to June 15, 2020.

### **3.3. Research results**

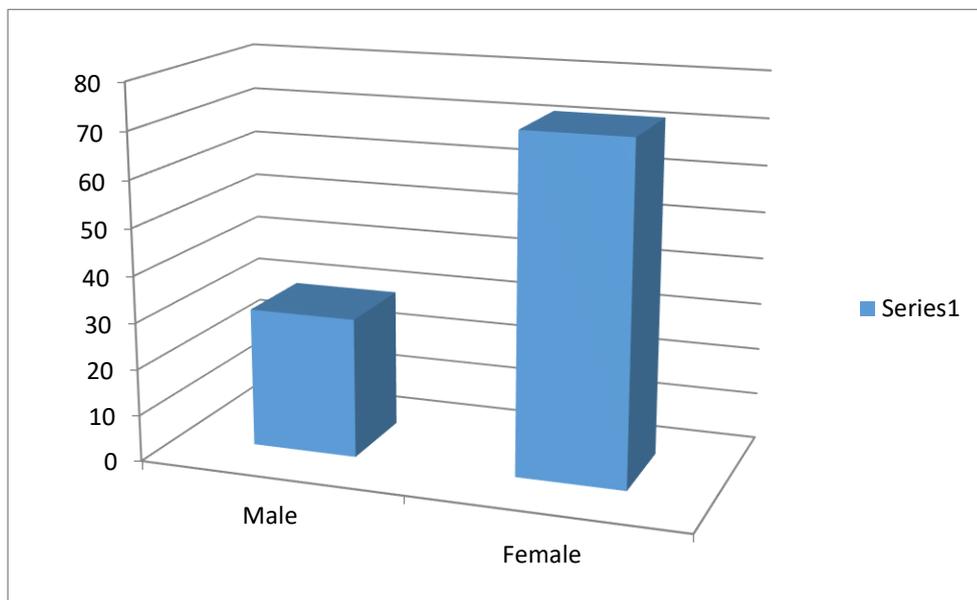
Considering the methodology used in the analysis of the collected data, the sufficient sample size for conducting individual statistical tests and the ratio of the number of respondents and the number of research variables were taken into account. In this study, for hypothesis testing, the sample for analysis consists of 102 respondents, which is a sufficient number compared to the number of variables used in hypothesis testing. The sample is also suitable for conducting certain statistical tests. The first step in the analysis of the collected data is to examine the relationship between the selected variables. Possible linear and nonlinear relationships were examined. First, the relationships between the variables are graphically presented and examined. The result of the linear correlation analysis is shown graphically. The processing of the collected data was performed using the software package for spreadsheets Microsoft Office Excel 2010 and the statistical data processing program IBM SPSS Statistical 17.0. Methods of descriptive statistics, correlation and multiple regression were applied, resulting in reliable and statistically accurate data. Of the observed sample by age, most respondents are aged 70 to 79 years, 57%, followed by respondents aged 80 to 89 years, 25%, and 14% of respondents aged 69 years, and the least respondents older than 90 years, 4% of the total number of respondents from the sample, which is graphically visible in Graph 1.

*Graph following on the next page*



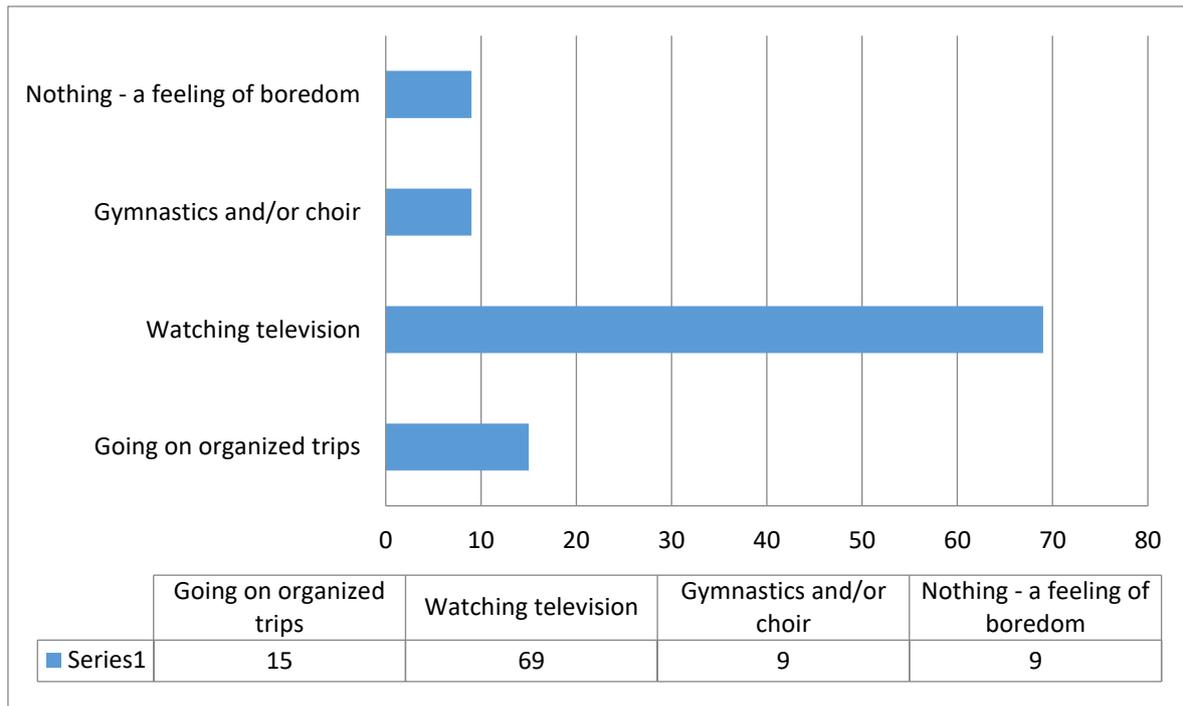
*Graph 1: Age structure of respondents  
(Source: Author's own research)*

The number of respondents in the observed sample by gender is graphically shown in Graph 2, it can be seen that the survey questionnaire was completed by 29% of men and 71% of women. The data obtained are not surprising given the well-known fact that women live on average significantly longer than men.



*Graph 2: Structure of respondents by gender  
(Source: Author's own research)*

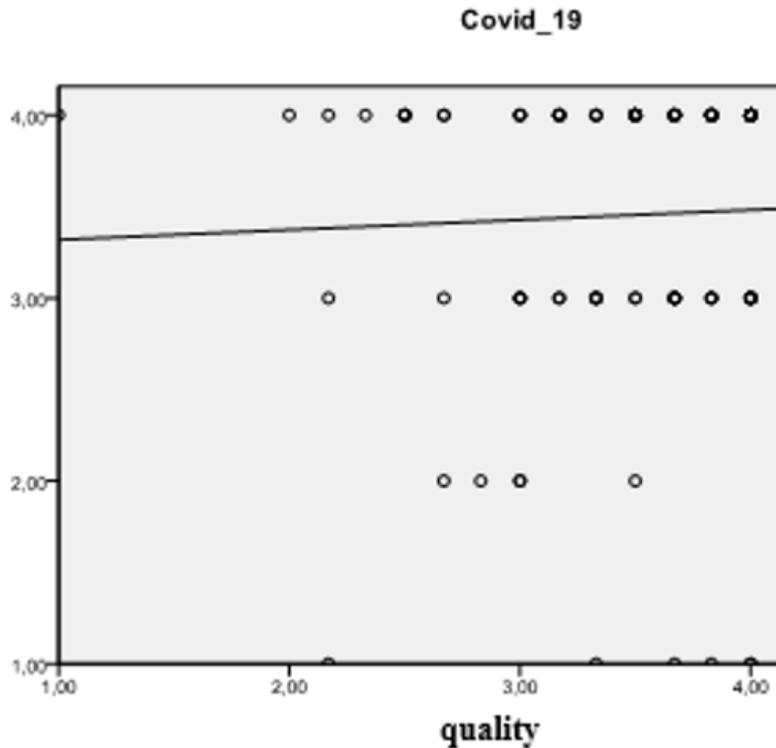
This empirical research sought to obtain data on how to spend free time of respondents staying in the home for the elderly and infirm Sibenik. The aim of this question was to gain knowledge about the sociability and socialization of respondents who use the services of the Home, because it is a reflection of their general acceptability of life in such a specialized social institution. From the data obtained by the research, which are shown in Graph 3, it can be seen that most users are open to developing social contacts with the environment in which they live.



*Graph 3: Overview of the spending of free time of the respondents in the Home  
 (Source: Author's own research)*

Graph 3 shows that respondents who use the services of the Home for the elderly and the infirm spend most of their free time, 69% of them, watching television, and given that TVs are in common living rooms on all floors and living areas of the Home, this is a good indicator of the sociability and socialization of respondents who use the services of the Home. Considering the population of respondents, a significant number of those who spend their free time in organized excursions, visits to national parks and museums, which make up 15% of respondents. A small number of respondents spend their free time practicing gymnastics or participating in a choir, 9% of them. There are a small number of respondents, nine of them, who do not show interest in spending free time watching television or some other activity, but two are, unfortunately, completely immobile people who in this case can not be treated as antisocial people. However, seven respondents who do not show a satisfactory level of sociability rated the level of satisfaction with quality of life with an average score of 2.79 out of 4, and we can conclude that people who show a certain degree of depression are sufficiently satisfied with quality of life in a home for the elderly and infirm. A linear correlation between the degree of satisfaction with quality of life by responsible behavior during the COVID 19 virus pandemic was analyzed, as shown in Graph 4, and it was concluded that there is no linear correlation between the observed variables.

*Graph following on the next page*

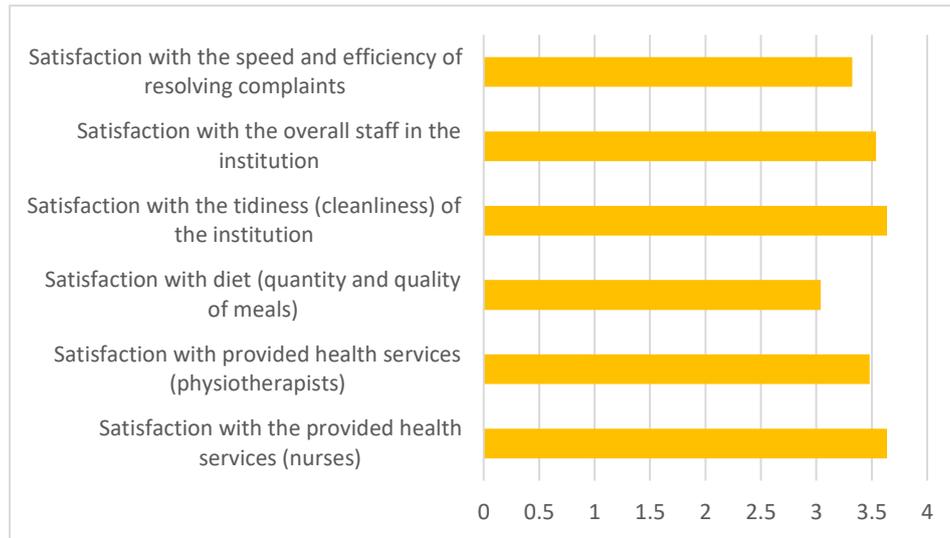


*Graph 4: Diagram of quality wastage and responsible behavior during a pandemic  
(Source: Author's own research)*

In this research, hypothesis testing was conducted on a sample of 102 respondents, which is a satisfactory sample considering the population to which the respondents belong, the elderly placed in health and social care homes. Hypothesis testing H1 includes an analysis of satisfaction with the quality of life of service users in the Home for the elderly and the infirm during the COVID 19 pandemic. The focus for determining the quality of life is on analyzing the level of satisfaction with the provided health services and care services, then satisfaction with nutrition and tidiness (cleanliness) of the home, and satisfaction with the entire staff and the speed of resolving complaints of users of services at home. The obtained results of the survey of satisfaction with the quality of life of Home users during the pandemic are shown in Graph 5. For questions with offered intensity answers, Likert's measurement scale with four agreement intensities or disagreement intensities was used, where the intensities were scored as follows:

- 1 – satisfied - 4 points
- 2 – I am partially satisfied - 3 points
- 3 – can always get better - 2 points
- 4 – I am not satisfied – 1 point

*Graph following on the next page*



Graph 5: Satisfaction with the quality of life of service users in the Home  
 (Source: Author's own research)

Graph 5 shows that the users are extremely satisfied with the services provided in the Home. Respondents expressed dissatisfaction with the diet (quantity and quality of meals) and the survey obtained an average score of 3.0392 out of a possible 4. Despite the results, it should be noted that meals are prepared according to regulations and menus in accordance with the opinion of the Committee on menus, consisting of constituent members who use the services of the Home. Survey of satisfaction with the overall quality of life in the home during the pandemic found satisfactory levels of satisfaction with health and care services, satisfaction with nutrition and cleanliness of the home, and satisfaction with all staff, as well as speed of resolving complaints and problems of home users. Hypothesis H1 is confirmed from the above, it can be established that the satisfaction with the quality of life of service users in the Home for the elderly and the infirm during the COVID-19 pandemic is at a satisfactory level. In Table 1, the correlation coefficient R shows that the correlation between the variables is almost non-existent, extremely small and almost insignificant (0.037). The coefficient of determination R<sup>2</sup> is closer to zero than one (almost 0), so we cannot talk about good representativeness of the model. It is further seen that the empirical F ratio (0.137) is less than the theoretical value (0.712), and on this basis, given the significance level of 0.05 and the number of degrees of freedom (1,100), hypothesis H2 is not accepted. Satisfaction with the quality of life is not statistically significantly related to the responsible behavior of Home service users during the COVID-19 pandemic.

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	,037 <sup>a</sup>	,001	-,009	,57381	,001	,137	1	100	,712	1,424

a. Predictors: (Constant), Covid\_19  
 b. Dependent Variable: Kvaliteta

Table 1: Regression model of quality of life satisfaction and responsible behavior during the COVID-19 pandemic  
 (Source: Author's own research)

Based on the conducted empirical research, previously mentioned in this paper, the survey of respondents from the Home for the elderly and the infirm in Sibenik also covered the period of the pandemic caused by COVID-19.

Satisfaction with information and guidelines for preventing the spread of COVID-19 disease was examined. According to the survey, 83.37% of respondents said they were satisfied with the information and instructions for the prevention of COVID-19 infection. Only 17.65% of respondents, or 18 of them, are dissatisfied or think they can do better, while only one respondent is dissatisfied with the information and guidelines for prevention COVID-19. Data obtained on the state of nervousness and tension at the time of the pandemic show that 49.01% of respondents do not feel nervous or tense, sometimes 13.73%, while 37.25% of respondents often mostly feel tension and nervousness. It can be concluded that half of the respondents do not feel nervous and tense during a pandemic. Furthermore, data were obtained that more than half of the 58 respondents did not feel fear during COVID-19. Of the total number of respondents, 17 sometimes, 14 often and 13 mostly feel fear during a pandemic, and given the severity of the pandemic situation directly affected by the elderly population, the results obtained can be considered satisfactory. Survey of feelings of depression and sadness due to separation from relatives, 29 respondents, users of the Home's services, answered that such feelings are rare, and 22 of them sometimes, 19 often and 32 respondents mostly have a strong feeling of depression and sadness due to isolation and inability to visit their loved ones. From the conducted research, the part related to the situation and feelings of the users of the Home's services during the COVID-19 pandemic, from the answers obtained by the survey questionnaire we can see that the users of the Home for the elderly and infirm do not have a strong sense of fear, they are satisfied with the epidemiological instructions, but not with the measures, because they show extreme dissatisfaction with the isolation and the inability to visit their loved ones.

#### **4. CONCLUSION AND DISCUSSION**

The empirical research presented in this paper was conducted by a survey in the period from June 1 to June 15, 2020 on a sample of 102 service users of the home for the elderly and the infirm Sibenik. Based on the set hypotheses and the conducted research, it was noticed that the users of the services of the Home for the elderly and the infirm are satisfied with the overall quality of life, satisfaction with the quality of life of the examined elderly is at a satisfactory level. Respondents show the greatest dissatisfaction with the quantity and quality of meals, but it should be noted that the norms are prescribed by the standards of nutrition of the elderly, and menus are prescribed and adopted according to the conclusions of the internal committee of users of the Home. Hypothesis H2 has not been confirmed, satisfaction with the quality of life of service users in the Home for the elderly and the infirm is not statistically related to responsible behavior during a pandemic. Examining the satisfaction and feelings of Home users during the pandemic, the research shows that home users for the elderly and infirm do not have a strong sense of fear, are satisfied with epidemiological instructions, but not measures because they show extreme dissatisfaction with isolation and inability to visit loved ones. In general, it can be concluded that the users of the Home's services are satisfied with the quality of life, but as the respondents are extremely sensitive to the vulnerable group in society, it is necessary to often check their quality of life and try to improve their quality of life. One of the research limitations is that the conclusions are based on observations on a sample of 102 respondents, which may call into question the generalization of the conclusions. Given that the model is based on the results of statistical data processing in which multivariate analysis methods are applied, which allows processing a large number of variables, the proposal of further research is to include more respondents and other variables to collect additional information. Given the statistical significance of the sample of observed independent variables, but the impossibility of excluding the impartiality of the respondents, it is necessary to repeat the research on a larger number of respondents, including more variables.

Expand the research to more regions in the Republic of Croatia, include more homes for the elderly and infirm and a larger number of respondents of about 1500 in order to obtain a more representative sample and be able to draw general conclusions on research topics.

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## HUMUS: THE FORGOTTEN ANSWER TO CLIMATE PROTECTION AND SUSTAINABLE FARMING

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### **ABSTRACT**

*Until recently organic waste was viewed as something we must get rid of at the lowest possible cost. Now slowly the paradigm is shifting and the value and potential of organic matter is being recognised. Organic waste can be composted and with some knowledge a humus rich soil can be produced. Since soil can store twice as much carbon as is present in the air, the soil is a very important reservoir of carbon. By fixing carbon from organic waste in a stable form and introducing it back to the land, we can bring a huge contribution in reducing CO2 burden. Archaeologists have found very fertile and stable humus soils in certain areas of Amazonia and if we lead the composting process in the direction to form stable and rich soil, we can offer a possibility of organic fertilisers that have shown an enormous advantage over mineral fertilizers. Researchers have found ways to influence composting processes to enhance production of extremely fertile soil in composition similar to terra preta found in Amazonia. The Green mine we have so far followed standard procedures of composting, but we plan to implement results of terra preta research terra in the process of composting. Research has shown that the presence of mineral flour and charcoal essential in the formation of extremely fertile and sustainable soil. Mineral flour offers micronutrients along with other ingredients forms fertile soil composites. Charcoal provides an extremely large surface for the formation of new habitats for microorganisms and thus allows propagation of beneficial microbes that are essential for the formation of fertile soil. We see the future of composting as a unique opportunity to create sustainable fertile soil that will enrich and renew by now exhausted fields and at the same time fix carbon from the air and contribute to climate protection.*

**Keywords:** carbon humus, terra preta

### **1. INTRODUCTION**

Artificial fertilizers and intensive cultivation have long term negative impact on the soil and its biology. Therefore, measures to revitalize the soil are becoming more and more important. An extremely fertile black earth, discovered by archaeologists in the Amazon Basin, offers an alternative to artificial fertilizers and intensive tillage. The so-called terra preta was developed by an advanced civilization, located in the Amazon region. One of the key elements is the enclosed charcoal. The development of modern tillage and fertilization methods allows today the production of more agricultural products than ever before with fewer staff on less surface. The negative effects of it on the soil will not be noticed until decades later and are in most cases compensated by even more intensive tillage and over-fertilization. All activities that are performed in the soil affect one or more parameters. Loosening, mixing and tacking tillage completely changes the natural structure and creates new conditions for the edaphon (a term describing all organisms living in the soil). Biochemical processes are subsequently favoured or inhibited, depending on the type of intervention. By the tillage the soil is at least temporarily open and is increasingly exposed to mechanical and chemical influences such as erosion or immission (Kuntze et al. 1994).

One alternative to intensive cultivation and artificial fertilization is a preservative tillage and the introduction of organic nutrients from compost. A possibility the native Amazonians knew well. Archaeologist namely found extremely fertile sustainable humus the so-called terra preta. The natives found a method of composting that gave rise to fertile sustainable humus that has been stable for thousands of years. When organic matter is reintroduced into the soil it stabilizes the humus content in the soil, which activates soil life, thereby promoting all nutrient transformations. It also stabilizes the soil structure, increases, porosity, water infiltration and storage capacity of the soil, protects against drying and erosion, and represents the largest reservoir of nitrogen in the soil (Amberg, 1979).

## **2. CURRENT COMPOSTING METHOD IN ZELENI RUDNIK**

Composting at Zeleni rudnik Pomurja consists of three main parts:

- the preparation of composting materials
- the active composting process
- the processing of mature compost and storage

### **2.1. The preparation of composting materials**

The preparation of composting materials is physically separated from the actual composting process, to prevent the contamination of mature compost with fresh biological material. The biological material delivered for composting is if necessary temporarily stored protected from the weather, whereas the required structural material, due to its inertness can be stored on an open platform. Ready and grind structural material and biological material is mixed and prepared in a mixture of compost in a dedicated mixer (Mashmaster) that adequately homogenizes the material. If necessary the mixture can be moisturised and stored temporarily in a separate box (7,5 m x 5m) protected from weather conditions.

### **2.2. The active composting process**

The compost mixture of is moved to the active portion of composting on an open plateau, which has a regulated ventilation kinete (used for active ventilation and drainage of the compost heap). The mixture is moved to a separate mechanical composting station which is ventilated and equipped with the supervisory control technique (supervisory container, COMPOtainer and biofilter container).The administrative / supervisory container is intended to control the composting process and manage the input / output data and protocols. The COMPOtainer is controlling the ventilation with pressure/vacuum system and connecting to the kinetic and ventilation biofillter module. The latter is used to clean the air sucked from the vacuum system of active composting. Active composting is carried out on the high plateau which governs ventilation trenches, serving to promote and conduct regular biological processes. Each compost heap is 40m long and is formed with a wheel loader. When the heap is formed it is periodically mixed with a dedicated compost mixer. The dates of mixing are determined by the control techniques and experience. Formed heaps are placed three lines depending on the maturation of the compost. In the initial phase in the area is vacuum ventilated and periodically shifted to the next line with pressure ventilation. Last line of is without active ventilation and is dedicated for final maturation and stabilization of the compost.

### **2.3. The processing of mature compost and storage**

Mature compost is separated into two factions. Fine fraction is stored as a final product, coarse fraction is mixed together with a structural material and partially returned to the composting system (vaccination). The mature compost can be stored either in the open plateau or protected from weather conditions.

### 3. APPLYING THE KNOWLEDGE OF TERRA PRETA TO PRACTICE

#### 3.1. Rock Flour

Analysis of terra preta has shown this soil to be very rich in minerals. It is believed that the natives added rock flour of finely ground rocks to the composting piles to increase the fertility of humus. Research has shown that diabase or basalt rock dust stimulates microorganisms and provides micronutrients for the crops. The huge surface that is gained by the rock flour is an excellent habitat for diverse bacteria that are necessary for fertility of the soil. It has also been shown that some micronutrients from rock flour function as biocatalysts for enzymatic reactions. Enzymes are critical in the breakdown of raw organic matter during the composting process. In turn, organic acids formed as a byproduct of microbial activity help to solubilize and mineralize elements in the parent rock dust material, thus making these mineral elements more bioavailable. When organic matter, clay, and rock dusts are mixed together in the compost windrow, the complex biotransformation and repolymerization processes that occur during composting provide an opportunity for organo-mineral chelated complexes to form (Li JG, Dong YH., 2013).

#### 3.2. Biocoal

Another interesting feature of the terra preta is a high content of charcoal, even up to 35% of organic matter (Glaser et al., 2001). Biochar (charcoal produces with the process of pyrolysis) acts as a stable carbon compound being degraded only slowly with a mean residence time in the millennial time scale. Biochar has a high specific surface area (400 – 800 m<sup>2</sup> g<sup>-1</sup>), it provides a habitat for soil microorganisms which can degrade more labile organic matter. In addition, higher microbial activity accelerates soil stabilization. Furthermore, higher mineralization of labile organic matter and biochar itself provided important nutrients for plant growth. Research has shown that biochar application to soil influences various soil physico-chemical properties. Due to the high specific surface area of biochar and because of direct nutrient additions nutrient retention and nutrient availability are enhanced after biochar application (Glaser et al., 2002; Pietikäinen et al., 2000). Higher nutrient retention ability, in turn, improves fertilizer use efficiency and reduces leaching (Steiner et al., 2008; Roberts et al., 2010). Most benefits for soil fertility were obtained in highly weathered tropical soils but also higher crop yields of about 30% were obtained upon biochar addition in temperate soils (Verheijen, 2009). Furthermore, enhanced water-holding capacity can also cause a higher nutrient retention because of a reduced percolation of water and the herein dissolved nutrients (Glaser et al., 2002).

	pH	Exchangeable cations (mg/100g soil)		Maximum water holding capacity %
No charcoal	4.7	Potassium = 50	Magnesium = 4.1	40
With charcoal	5.1	Potassium = 70	Magnesium = 10.4	47

Table 1: Soil properties after harvesting a crop of soybeans in Indonesia  
 (Source: Waksman, Selman. 1952. Soil Microbiology. John Wiley & Sons, New York)

	Yield t/ha	Relative ratio
No charcoal	0.65	100
With charcoal	0.85	131

Table 2: Soil properties after harvesting a crop of soybeans in Indonesia  
 (Source: Waksman, Selman. 1952. Soil Microbiology. John Wiley & Sons, New York)

	Yield t/ha	Relative ratio	Number of root nodules	Relative ratio
No charcoal	1.56	100	777	100
With charcoal	2.18	138	1,212	156

Table 3: Soil properties after harvesting a crop of soybeans in Indonesia  
 Source: Waksman, Selman. 1952. Soil Microbiology. John Wiley & Sons, New York

Treatment	Charcoal t/ha	Relative biomass %	Crop/Plant
No Charcoal	0	100	Pea
Charcoal	0.5	160	Pea
No Charcoal	0	100	Moong
Charcoal	0.5	122	Moong

Table 4: Effect of charcoal on crop biomass  
 Source: Waksman, Selman. 1952. Soil Microbiology. John Wiley & Sons, New York

### 3.3. Edaphon

Edaphon is a collective term describing the community of organisms living in the soil. In Figure 1 the relative ratios of different organisms are depicted. It is evident that microorganisms comprise the largest portion of the edaphon, since bacteria, algae and fungi represent around 80% of all organisms present in the edaphon. Research indicates that these organisms are the ones determining the quality of humus and consequently also crop yields.

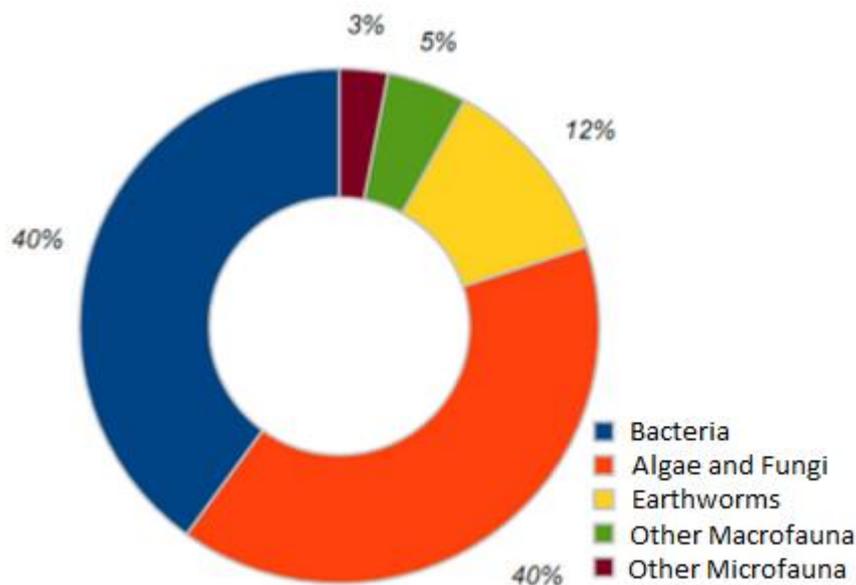


Figure 1: Structure of the edaphon: a visual representation of the percentage of different organisms comprising the edaphon

The terra preta soil is an interesting example where the abundance of microorganisms is very high and also diversity of organisms is much higher in comparison to other humus. An interesting study performed at the Sonnenerde research center investigated the abundance of microorganisms in different types of humus and also in terra preta.

They have found that the number of microorganisms increases most evidently with the addition of biochar. This observation is an indication that the biochar is important structuring and protection element that promotes the growth of selected beneficial microorganisms. The porous structure of biochar, its large surface area and the ability of soluble organic substances to absorb gases and inorganic nutrients are the properties which makes it a suitable habitat for microorganisms. The pores of the biochar also form a protective habitat where microorganisms are protected from natural predators (Saito and Muramoto, 2002).

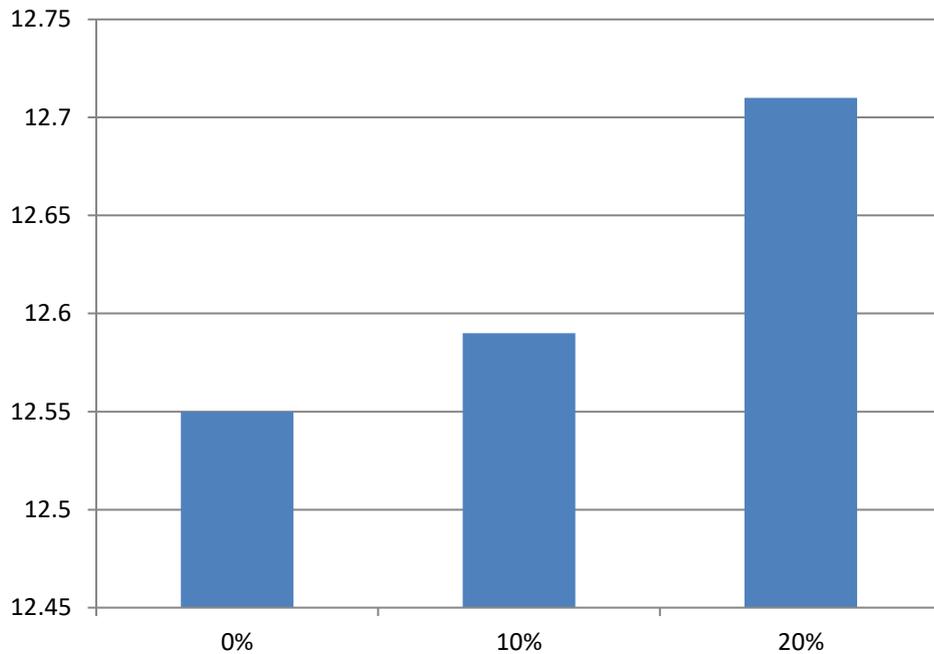


Figure 2: Relative number of Gama proteobacteria estimated with amplification of specific genes per g of compost with 0%, 10% or 20% Biochar (Hofbauer B., 2012)

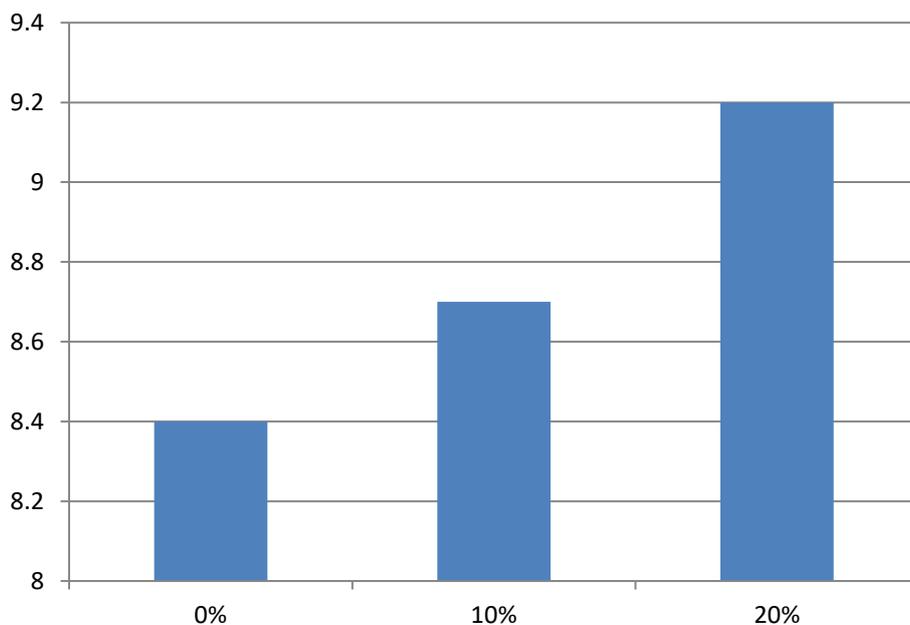
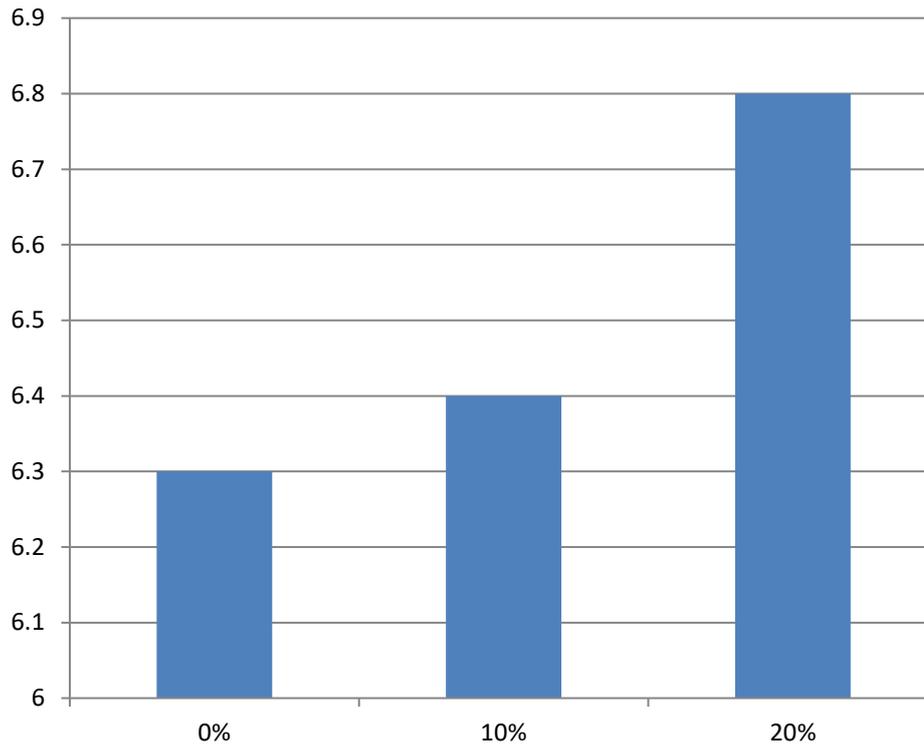


Figure 3: Relative number of Firmicutes in compost estimated with amplification of specific genes per g of compost with 0%, 10% or 20% Biochar (Hofbauer B., 2012)



*Figure 4: Relative number of nitrogen fixing bacteria in compost estimated with amplification of specific genes per g of compost with 0%, 10% or 20% Biochar (Hofbauer B., 2012)*

With the addition of biochar the numbers of all investigated bacterial groups increased, the largest difference was observed in nitrogen fixing bacteria. This is especially interesting with regard to the fact that nitrogen is in most cases the limiting nutrient in growing plants and crops. Bacteria are the crucial players in conversion of elemental nitrogen. In the atmosphere there is 78% nitrogen, but it is the least reactive form on nitrogen and is not directly available to plants. To bioavailable forms of nitrogen for plants are nitrate and ammonium. Bacteria are the capable of converting the inert form of nitrogen from the atmosphere into bioavailable forms. Usually these bacteria live in symbiosis with legumes (Bradic et al, 2003), are associated with plant roots or free living in earth (Vadakattu & Paterson, 2006). The presence of these bacteria in the soil is a prerequisite for a fertile soil.

#### **4. FUTURE**

We are planning to use the current knowledge from terra preta research to our composting processes and aim to produce highly fertile humus. This humus can then in turn be used in sustainable agriculture and farming. In this way damage to the environment due to intensive tillage could be dramatically reduced. Applying the knowledge of terra preta to contemporary soil management can reduce environmental pollution by decreasing the amount of fertilizer needed, because the bio-char helps retain nitrogen in the soil as well as higher levels of plant-available phosphorus, calcium, sulfur and organic matter. The black soil also does not get depleted, as do other soils, after repeated use (Lehmann, 2003). So we believe that producing and applying humus to soil would not only improve soil and increase crop production, but also could provide a novel approach to establishing a significant, long-term sink for atmospheric carbon dioxide. It is estimated that we require only 10% of our productive, degraded lands to absorb the estimated 6.1 gigatons of carbon dioxide emissions to make a carbon negative world possible in our life time (O'Grady R. and Rush R, 2007).

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## THE PREVALENCE OF CONTENT RELATED TO THE SUSTAINABLE DEVELOPMENT OF SOCIETY IN LIFESTYLE MAGAZINES IN THE REPUBLIC OF CROATIA

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### **ABSTRACT**

*The enormous transformation and digitalization of the media we have witnessed in the last ten or more years have redefined its social role, but also the way in which users today perceive and consume the media. These changes also affected lifestyle magazines. However, scholars or media experts do not focus on lifestyle magazines when it comes to social responsibility and the role of the media, which should not be the case given the scope of their reach and readability. Furthermore, there is the problem of the negative perception of lifestyle journalism as a relevant medium in the field of sustainable development of society and the continuous decline in their print circulation. Having this in mind, the aim of this paper is to determine the amount of content related to the sustainable development of society in lifestyle magazines. The research is conducted through a quantitative method - content analysis of relevant lifestyle magazines. The presence of topics related to sustainable development of society in lifestyle magazines is measured by comparative analysis of media content in the 10 lifestyle magazines with the highest circulation. The analysis will examine the prevalence of topics from the 17 global goals of sustainable development established in the UN Agenda 2030 for Sustainable Development. This research provides original scholarly results which can contribute to a better understanding of lifestyle magazines in the context of topics related to sustainable development of society as key determinants for the development of a democratic society.*

**Keywords:** *lifestyle magazine, media, sustainability, journalism*

### **1. INTRODUCTION**

According to Christians (2009), modern media in a democratic society puts profit in the first place, and only then independent journalism and professionalism, which results in the wrong selection of content and biased presentation. In order to survive and be more financially sustainable, media owners are linked to the politics in power. Furthermore, the link between media owners and advertisers is undeniable and sometimes more important to owners than it should be (Christians: 2009). In addition, the transformation and digitalization of the media we have witnessed in the last ten or more years has redefined its social role, but also the way in which users today perceive and consume the media. At the same time, socially responsible journalism is experiencing a steady decline in its reach and financial self-sustainability, and thus its importance, while daily journalism struggles with relevance given the large number of fake news and unverified content on digital platforms. Moreover, although they are more financially sustainable, lifestyle magazines are not the focus of either scholars or media professionals when it comes to social responsibility and the role of the media, which should not be the case given their reach and readability. In addition, there is the problem of negative perception of lifestyle journalism as a relevant medium in the field of sustainable development of society and its continuing decline in circulation. However, Kristensen and From (2012) argue that lifestyle journalism provides a starting point for understanding and analysing contemporary ways of life and patterns of creating tastes and constructing national identity. Folker Hanusch (2012, 2013, 2014) also considers lifestyle journalism an important dimension of the profession, but even his most recent papers, like Thomas Hanitzsch and Tim Vos' (2016), are more focused on the role of journalists as professionals who can accept different functions rather than on

lifestyle journalism and its role on public opinion. Hartley (2000) argues that softer foreign media, such as lifestyle journalism, could actually have a beneficial effect on an audience who are tired of traditional heavy news formats. He believes that lifestyle journalism “expands the reach of the media, teaches the audience the pleasures of following, popularizes knowledge” (Hartley, 2000). Accordingly, he points out that such journalistic efforts have enormous potential to contribute to the public sphere, perhaps in a different way than traditional mainstream journalism. Usher (2013), on the other hand, argues that lifestyle journalists can create a sense of community and belonging with their audiences through their reporting, and Shuang Li (2013) says that lifestyle journalism is very important in societies with limited media freedom. Furthermore, the United Nations emphasizes the need to support multidimensional communication systems to foster dialogue and enable communities to express their views, aspirations, concerns and participate in decisions about the development of these communities (Antonio Guterres, Geneva, 2019<sup>1</sup>). In 2012 UNESCO published “Media as partners in education for sustainable development”<sup>2</sup> (UNESCO, 2012) in which they emphasized the role of all media in communicating topics on sustainable development, offering journalists information on the main problems of sustainable development, and directing them towards research in this area. This is particularly important in the context of the UN 2030<sup>3</sup> Sustainable Development Program (UN, 2015), which defines 17 sustainable development goals and their sub-goals, signed by all Member States: “a world without poverty; a world without hunger; health and well-being; quality education; gender equality; clean water and sanitation; affordable energy from clean sources; decent work and economic growth; industry, innovation and infrastructure; reducing inequality; sustainable cities and communities; sustainable consumption and production; climate protection; conservation of the aquatic world; preserving life on Earth; peace, justice and strong institutions; partnerships to goals.” Nevertheless, despite the importance of sustainable development for the prosperity of a democratic society and the fact that some global scholarly research on lifestyle journalism has attracted attention and emphasized the importance and role of lifestyle journalism, there has been no lifestyle magazine research on sustainable development in the Republic of Croatia.

## 2. THE RESEARCH RESULTS

The main aim of this research<sup>4</sup> is to determine the amount of content related to the sustainable development of society in lifestyle magazines on the example of the ten lifestyle magazines with the highest circulation<sup>5</sup> in the Republic of Croatia in the period of three months. Two sub-aims emerged from the main aim: to determine whether lifestyle magazines in the Republic of Croatia contain a sufficient number of topics related to sustainable development of society and whether these topics are positioned in a way that the readers of these magazines consider them relevant. The research was conducted in accordance with the stated aims and the set hypothesis, and it was carried out using the quantitative method: content analysis of relevant lifestyle journals. According to Lamza Posavec (2021), content analysis is the process of studying and analysing verbal or non-verbal material which seeks to identify its characteristics and messages. It is a part of the so-called desk research, and although there is a qualitative and non-frequency analysis of the content, a quantitative analysis of the content was conducted for the purposes of this paper due to the aims and intentions of the research. The aim of this method was to determine how much media with the highest circulation in Croatia cover the topics of sustainable development of society, in what proportion to other topics, how they are positioned

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1 Available at <https://news.un.org/en/story/2019/04/1036421>

2 Available at <https://unesdoc.unesco.org/ark:/48223/pf0000158787>

3 Available at <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

4 The research was carried out for the purposes of the author's doctoral thesis entitled “The Perception of lifestyle journalism in the area of sustainable development of society”.

5 According to Ipsos (<https://www.ipsos.com/en>)

within the magazine, and whether they are announced on the cover. The presence of topics related to sustainable development of society in lifestyle journalism was measured using the comparative analysis of media content in the ten lifestyle media with the highest circulation (2 weeklies - Story and Gloria, 5 monthlies - Cosmopolitan, Elle, Beauty & Health, Grazia, Sensa and 3 quarterly magazines - Miss 7, StoryBook and GloriaGlam). The analysis examined the prevalence of topics from the 17 global goals of sustainable development established in the UN 2030 Agenda for Sustainable Development. The research unit in the content analysis was an article on certain topics related to sustainable development, and each article was further analysed based on the following points: text size, text positioning, announcement of the text on the cover. The comparative analysis investigated the similarities and differences between the examined lifestyle magazines in the context of publishing and dealing with content on sustainable development of society in a period of three months (from July 1<sup>st</sup> to October 1<sup>st</sup> 2020).

## 2.1. Weeklies

A weekly is a magazine which is published once every seven days, or once a week. In the Croatian market the segment of lifestyle journalism offers only 2 such magazines: Gloria, published by Hanza Media<sup>6</sup> and Story by Adria Media Zagreb<sup>7</sup>. Gloria is out on Thursdays and Story on Wednesdays, with the exception of the holidays when they are delivered the day before. Although both magazines would actually belong more to the celebrity journalism segment because they primarily cover topics related to celebrities and public figures, they were included in this research due to their large influence and significant circulation, but also because of a wide range of lifestyle topics they cover with celebrity topics.

### 2.1.1. Story

*Story* is a weekly magazine which has been published by Adria Media Zagreb since 2002, and who describe it as “one of the most recognizable brands on the Croatian media market. For nineteen years it has been an authority on the world of show business, culture, fashion and a trendsetter regarding lifestyle.” (Adria Media Zagreb).

Story	Issue 26	Issue 27	Issue 28	Issue 29	Issue 30	Issue 31	Issue 32	Issue 33	Issue 34	Issue 35	Issue 36	Issue 37	Issue 38	Issue 39
world without poverty	0	0	0	0	0	0	0	0	0	0	0	0	0	0
world without hunger	0	0	0	0	0	0	0	0	0	0	0	0	0	0
health and wellbeing	0	0	1	0	0	0	0	0	0	0	0	0	1	2
quality education	0	0	0	0	0	0	0	0	0	0	0	0	0	0
gender equality	1	0	0	0	0	0	0	0	0	1	1	0	0	0
clean water and sanitation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
affordable energy from clean sources	0	0	0	0	0	0	0	0	0	0	0	0	0	0
decent work and economic growth	0	0	0	0	0	0	0	0	0	0	0	0	8	0
industry, innovation and infrastructure	0	0	0	0	0	0	0	1	0	0	0	0	0	0
reducing inequality	0	1	1	1	1	1	1	1	1	1	1	1	1	1
sustainable cities and communities	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sustainable consumption and production	0	0	0	0	0	0	0	0	0	0	0	0	0	0
climate protection	0	1	0	0	0	0	0	0	0	0	0	0	0	0
conservation of the aquatic world	0	0	0	0	0	0	0	0	0	0	0	0	0	0
preserving life on Earth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
peace, justice and strong institutions	0	0	0	0	0	0	0	0	0	0	0	0	0	0
partnerships to goals	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1: Analysis of the magazine *Story* in the period from 1<sup>st</sup> July to 1<sup>st</sup> October, 2020

Table 1 shows that fourteen issues of *Story* were published in the analysed period of three months, where eight editions featured only one article related to some of the goals of sustainable

6 <https://hanzamedia.hr/>

7 <http://adriamedia.hr/>

development of society. Four editions had a total of two such articles, one issue three, and another one ten (of which eight articles were published in the special on finance). In total, only thirty articles on sustainable development of the society were published in three months. Furthermore, most of the articles, thirteen of them, were published in a special section called *SameChances by Story*, which stands out from the rest of the magazine's content. It has been a part of the editorial concept of the magazine since 2018, so that each issue publishes texts and interviews related exclusively to reducing inequality among people, with the aim of including minorities in society. Based on other eight articles published in the special issue (the part of the magazine dedicated to a specific topic and not the regular part of the magazine or usual editorial concept), we can conclude that only nine articles (four on health and well-being, three on gender equality, one on the innovation and infrastructure industry and one on climate protection) were published in the regular part of the fourteen magazines in three months. Editors of all magazines, especially weeklies which offer more popular topics than monthly magazines, think carefully about which topics to publish on the cover because they sell the issue. In the analysed period, all articles on sustainable development of society were published in the central part of the magazine, and only two were advertised on the cover: Issue 30 entitled “An RTL star talks for the first time about the adoption of a son” and Issue 39 entitled “No more fear, this is the real me”. Finally, the specials “Immunity” (Issue 37) and “Finance” (Issue 38) were announced on the cover.

### 2.1.2. Gloria

Gloria is a weekly magazine which was first published by EuropaPress Holding (now Hanza Media) in 1994, and which on its official website states that it is “guided by high standards of content and form, professionalism, verification and exclusivity, as a chronicler of social events in the region, Gloria brings readers closer to the lives of celebrities, successful people and public figures from the world of pop culture, film, sports, art, fashion, nobility, science and entrepreneurship”. (Hanza Media) Gloria is the longest-lived lifestyle medium in modern Croatian history and has an image and reach larger than any other lifestyle magazine in Croatia.

GLORIA	Issue 1330	Issue 1331	Issue 1332	Issue 1333	Issue 1334	Issue 1335	Issue 1336	Issue 1337	Issue 1338	Issue 1339	Issue 1340	Issue 1341	Issue 1342
world without poverty	0	0	0	0	0	0	0	0	0	0	0	0	0
world without hunger	0	0	0	0	0	0	0	0	0	0	0	0	0
health and wellbeing	0	1	0	1	0	0	1	0	1	1	0	6	0
quality education	0	0	0	0	0	0	0	0	0	0	0	0	0
gender equality	0	1	0	0	1	2	1	2	1	0	0	0	0
clean water and sanitation	0	0	0	0	0	0	0	0	0	0	0	0	0
affordable energy from clean sources	0	0	0	0	0	0	0	0	0	0	0	0	0
decent work and economic growth	0	0	0	0	0	0	0	0	0	0	0	0	0
industry, innovation and infrastructure	0	0	0	0	0	1	1	0	0	0	0	0	0
reducing inequality	0	0	0	0	0	0	0	0	0	0	0	1	0
sustainable cities and communities	0	0	0	0	0	0	0	0	0	0	0	0	0
sustainable consumption and production	1	1	0	0	0	0	1	1	0	0	0	1	0
climate protection	0	0	0	0	0	0	0	0	0	0	0	0	0
conservation of the aquatic world	0	0	1	0	0	0	0	0	0	1	0	0	0
preserving life on Earth	0	0	0	0	0	2	0	0	0	0	0	0	4
peace, justice and strong institutions	0	0	0	0	1	0	0	0	0	0	0	0	0
partnerships to goals	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2: Analysis of the magazine Gloria in the period from 1<sup>st</sup> July to 1<sup>st</sup> October, 2020

As shown in Table 2, only one article was published in three issues in the three-month period, referring to some of the objectives of sustainable development of society. A total of two articles were published in four issues, three in two issues, four articles in two issues, five in one and eight in one (special issue "Six months after the earthquake"). In total, only thirty-six articles on sustainable development of the society were published in three months.

In addition, ten articles were published in two specials: Issue 1341 featured the article "Immunity", and Issue 1342 the article "Six months after the earthquake", which are not usually a part of the magazine. It follows that twenty-six articles have been published (five on health and well-being, eight on gender equality, two on the innovation and infrastructure industry, one on reducing inequality, five on sustainable production and consumption, two on conserving aquatic life, two on preserving life in country and one on peace, justice, and powerful institutions) in a period of three months in the regular part of the thirteen magazines. One issue (1340) had no articles on sustainable development of the society, while others had one or two articles on average, as shown in Table 2. All articles were featured in the central part of the magazine, and no articles on the topic of sustainable development of society were announced on the cover. Finally, only specials were featured on the cover: "Immunity" (Issue 1341) and "Six months after the earthquake" (Issue 1342).

## 2.2. Monthlies

In the Republic of Croatia, there are five monthly magazines by various publishers in the segment of lifestyle media, covering a wide range of lifestyle topics: *Cosmopolitan*, *Elle* and *Sensa* by Adria Media Zagreb, and *Grazia* and *Ljepota & Zdravlje* by Media Top International<sup>8</sup>. According to Ipsos<sup>9</sup>, these magazines are the highest-circulating monthly magazines in the Republic of Croatia, and they cover a wide range of lifestyle topics and address a wide population.

### 2.2.1. *Elle*

*Elle* is a monthly magazine published by Adria Media Zagreb and licensed by the French company Lagardere Group. The official website of Adria Media Zagreb states that *Elle* is "the largest fashion magazine in the world which celebrates style and shapes trends, both inside and outside the world of fashion. It was established in the second half of the last century as the ultimate magazine for a powerful woman of sophisticated taste, a feminist, informed, ambitious and sharp, who brings impeccable style to every aspect of her life." The analysed period covered three monthly issues of *Elle*. The first of three, the July 2020 issue, included only one article related to some of the objectives of sustainable development of society, that is, sustainable fashion. It was featured on the last pages, which is in monthly magazines usually reserved for less relevant topics. Furthermore, the article was not announced on the cover, and since *Elle* is a fashion magazine, it is not clear whether the article was published with the intention of talking about sustainability or simply trends in the fashion industry. The second of the three, the August 2020 Issue, featured three articles which relate to some of the objectives of sustainable development of society (one on gender equality, and two on the innovation and infrastructure industry). All three articles were published in the central part of the magazine, and one article (an article on fashion which crosses gender boundaries, "Gender Neutral Fashion") was announced on the cover. The last of three, the September 2020 Issue, featured one article on gender equality, also in the last part of the magazine, intended for less relevant articles, and had no announcement on the cover.

### 2.2.2. *Cosmopolitan*

"*Cosmopolitan* is the most entertaining practical guide to life with a special focus on first experiences: first love, first sex, first college, first job, first savings, first loan, first car, first apartment, first child, bravely and openly exploring all those important topics. Therefore, it is not surprising that we are a brand with the largest achievements in the Croatian market and closest to the young generations Y and Z, as well as those who are yet to come.

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<sup>8</sup> <http://mediatop.hr/>

<sup>9</sup> <https://www.ipsos.com/en>

Generation Alpha, we are ready for you!” This is the description of the magazine stated on the official website of the publisher, Adria Media Zagreb for the Croatian licensed edition of *Cosmopolitan*, owned by the American publishing house Hearst Corporation. In the analysed period, three monthly editions of *Cosmopolitan* were published, and each featured only one article which refers to some of the objectives of sustainable development of society. In the first analysed issue of *Cosmopolitan* (Issue 268), which came out on 116 pages, of which six and a half were ads, there was only one article on sustainable development of society. The article discussed the innovation industry (social networks). It was published in the central part of the magazine, without an announcement on the cover. In the second analysed issue of the magazine *Cosmopolitan*, August 2020, which was published on 116 pages, of which five were ads, there was one article on gender equality in the central part of the magazine, without an announcement on the cover. In the *Cosmopolitan* Issue 270, September 2020, which had 116 pages, of which five were ads, two articles on sustainable development of society were published, one on gender equality, in the central part of the magazine, and the other on the innovation industry, both without an announcement on the cover.

### 2.2.3. *Sensa*

*Sensa* is a monthly magazine published by Adria Media Zagreb, who on its official website state that “*Sensa* is a lifestyle brand which encompasses what all of us strive for: life balance at all levels. *Sensa* is the first and leading Croatian magazine in the field of well-being, a trend which has been growing rapidly worldwide and is one of the most profitable industries.” (Adria Media Zagreb) The analysed period included three monthly editions of the 116-page magazine *Sensa*. The Issue 151, July 2020, had 14.5 pages of ads, six articles related to some of the objectives of sustainable development of society: two on sustainable consumption and production, and one on health and well-being, gender equality, reducing inequality and preserving life on earth. Two articles were positioned in the first part of the magazine, three in the central part and one in the last part. Two articles were advertised on the front page: "Back to yourself after a burnout" and "Tips for a quality diet". In the August 2020 Issue, where nine pages were ads, three articles featured the following topics: health and well-being (two articles, positioned at the beginning and end of the magazine) and sustainable consumption and production (one article, at the back of the magazine). There were two announcements on the cover: "Thyroid at the right speed" and "Life values as our compass". Five articles were published in the September 2020 Issue, with eight pages of advertisements: health and well-being (three articles, central part of the magazine), affordable energy from clean sources (one article, first part of the magazine) and preservation of life on earth (one article last part of the magazine). Three announcements were published on the cover: "Alkalinity is vitality", "Menopause" and "Green recipes".

### 2.2.4. *Ljepota&zdravlje*

*Ljepota&zdravlje* (Beauty and Health) is a magazine published by Media Top International, who on their official website state that “*Ljepota&zdravlje* is a monthly magazine for modern girls and women aged 15 to 55, which celebrates its popularity in all countries of the region, and recently in Croatia as well.” We owe our success to in the selection of well-researched and professionally approached topics, as well as interesting and entertaining content.” (Media Top International) In the analysed period, three monthly editions of *Ljepota&zdravlje* were published (featuring 132, 140, and 124 pages). The first issue, July 2020, which was published on 132 pages, had 19.5 pages of ads and there were only two articles related to some of the objectives of sustainable development of society: one on health and well-being, and the other on gender equality. The first was positioned at the back of the magazine and the second in the first part of the magazine. Only one article was announced on the front page: “How to resolve

the money issue". The second analysed edition of the magazine, August 2020, which had 140 pages, of which 24 were ads, included five articles relating to some of the objectives of sustainable development of society. Four articles were about health and well-being, and one about the preservation of life on earth. All five articles were positioned at the back of the magazine. The front page featured two announcements: "Genetic tests at home" and "Skin & blood - innovative care". The third analysed issue of the magazine, September 2020, which came out on 124 pages, of which 20 were ads, featured nine articles related to some of the objectives of sustainable development of society: five articles on health and well-being (last part of the magazine, a health special), three on gender equality (first part of the magazine, a special issue) and one on sustainable consumption and production (central part of the magazine). Two announcements were featured on the cover: "Covid-19: the hidden consequences" and "The Power of Women".

#### 2.2.5. *Grazia*

The magazine *Grazia* is published by Media Top International, which states on its official website that it "offers practical fashion and beauty, ongoing events from all walks of life, and a window into real life, and that it is intended for a woman who is aware of the fact that she lives in a traditional society. She is partly satisfied, and partly she would like to make changes." (Media Top International) The analysed period covers two issues of *Grazia* (one for the month of July, and one special issue covering the months of August / September). The first analysed issue of the magazine *Grazia*, the one for July 2020, which was published on 124 pages, of which ten were ads, included seven articles relating to some of the objectives of sustainable development of society. One article was about a world without poverty (middle part of the magazine), one on gender equality (last part of the magazine), one on dignified work and economic growth (first part of the magazine), one on the innovation and infrastructure industry (middle part of the magazine), one on reducing inequality (first part of the magazine), one on sustainable consumption and production (first part of the magazine) and one on climate protection (middle part of the magazine, main article). Three announcements appeared on the cover: "Freedom of thought, speech, and way of life", "Circular economy", "Is there a new normal?". The second analysed issue, the special issue for August and September 2020, which was published on 140 pages, of which 16.5 were advertisements, contained seven articles relating to some of the objectives of sustainable development of society. One article was about health and well-being (first part of the magazine), one about quality education (first part of the magazine), two about gender equality (first and middle parts of the magazine), one about the innovation and infrastructure industry (middle part of the magazine), one about reducing inequality (middle section of the magazine) and one about sustainable cities and communities (middle section of the magazine). Two announcements appeared on the cover: "The State of Mind" and "Punishment Over being a Woman on the List".

### 2.3. Periodicals

There are three quarterly magazines in the Republic of Croatia in the segment of lifestyle media, covering a wide range of topics in the field of lifestyle: *StoryBook* (4 times a year), *Gloria Glam* (6 times a year) and *Miss 7* (4 times a year)<sup>10</sup>. All three magazines are high-circulating and cover a really wide range of topics: fashion, beauty, art, theatre, cooking, travel, and the like, and, although primarily intended for female audiences, they do address a rather wide population.

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<sup>10</sup> The information is supplied by Ipsos (<https://www.ipsos.com/en>)

### 2.3.1. *StoryBook*

The official description of the magazine *StoryBook* (published by Adria Media Zagreb) goes as follows: “Storybook is an exciting, provocative and modern glossy magazine which has established itself on the Croatian market as a leader in the slow journalism movement. Its successful formula uniquely combines art, pop culture, fashion, beauty, phenomenological topics, women's empowerment, the world of business, the social scene, gastronomy, and everything we call the art of living in the Storybook way.”(AMZ) However, although the official formula of the magazine points out that they cover phenomenological topics and women's empowerment, the analysed 276-page Issue 43 for the summer of 2020 features only nine articles related to some of the objectives of sustainable development of society: three articles on gender equality and two articles on the innovation industry, sustainable consumption and production, and climate protection. Three articles were published in the first part of the magazine, three in the middle part and three in the last part of the magazine, and none were announced on the cover.

### 2.3.2. *Gloria Glam*

*Gloria Glam* is a quarterly magazine published by Hanza Media. The official website of the publishing house states that *Gloria Glam* “is a unique lifestyle quarterly which brings exclusive stories from the world of fashion, beauty, gastronomy, design and culture and entertainment. The authors are renowned Croatian and foreign writers, and fashion editorials are shot by well-known Croatian and foreign photographers. *Gloria Glam* is the best-selling magazine in its category, with an average of 40,000 readers per issue” (Hanza Media). The analysed issue of *Gloria Glam*, published on 276 pages (of which 18.5 are ads), features only two articles relating to some of the goals of sustainable development of society. One article discusses gender equality, and the other the reduction of inequality. Both articles were published in the central part of the magazine, and neither was announced on the cover.

### 2.3.3. *Miss7*

*Miss7* is a lifestyle quarterly published by Styria Media Group AG. Its content includes fashion, beauty, design, architecture, and new trends in society. It boasts with authors who are excellent writers and experienced in the art of living well. It stands out with its innovative and attractive content structure.” (Styria Media Group AG<sup>11</sup>) Despite the publishers' announcements concerning this innovative content, the analysed magazine, which appeared on 244 pages in the summer of 2020, of which twenty-four and a half were advertisements, failed to publish more than one article on the sustainable development of society in that issue. The featured article covered the topic of reducing inequality, but it was not announced on the cover.

## 3. CONCLUSION

Should we consider the analysed corpus by topics, it is clear that some are not included in the content of the analysed magazines, while others, such as gender equality, health and well-being and industry innovation and infrastructure are more prevalent.

*Table following on the next page*

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<sup>11</sup> <https://www.styria.com/en>

TOPICS	StoryBook	GloriaGlam	Miss7	Elle	Cosmo	Sensa	Grazia	Ljepota & Zdravlje	Story	Gloria	TOTAL
world without poverty	0	0	0	0	0	0	1	0	0	0	1
world without hunger	0	0	0	0	0	0	0	0	0	0	0
health and wellbeing	0	0	0	0	0	6	1	10	4	11	32
quality education	0	0	0	0	0	0	1	0	0	0	1
gender equality	3	1	0	2	2	1	3	3	3	8	26
clean water and sanitation	0	0	0	0	0	0	0	0	0	0	0
affordable energy from clean sources	0	0	0	0	0	1	0	0	0	0	1
decent work and economic growth	0	0	0	0	0	0	0	0	8	0	8
industry, innovation and infrastructure	2	0	0	2	2	0	1	0	1	2	10
reducing inequality	0	1	1	0	0	1	2	0	13	1	19
sustainable cities and communities	0	0	0	0	0	0	2	0	0	0	2
sustainable consumption and production	2	0	0	1	0	3	1	1	0	5	13
climate protection	2	0	0	0	0	0	1	0	1	0	4
conservation of the aquatic world	0	0	0	0	0	0	1	0	0	2	3
preserving life on Earth	0	0	0	0	0	2	0	1	0	6	9
peace, justice and strong institutions	0	0	0	0	0	0	0	0	0	1	1
partnerships to goals	0	0	0	0	0	0	0	0	0	0	0
UKUPNO	9	2	1	5	4	14	14	15	30	36	130

Table 3: Analysis of the total corpus of all magazines according to the prevalence of topics in the period from 1<sup>st</sup> July to 1<sup>st</sup> October 2020

Table 3 shows that, in the period of three months, in total 130 articles with topics related to some of the objectives of sustainable development of society were published in the analysed magazines, with the most (32) published on health, which is understandable because it was the peak period of the coronavirus pandemic. Following are articles on gender equality (26) and on reducing inequality (19), and then sustainable consumption and production and industry innovation and infrastructure. All other topics were very sparsely dealt with or not written about at all (world without hunger, clean water and sanitation, and partnerships for achieving success). Although the UN Sustainable Development Agenda 2030 does not actually bind any country, all UN member states, including the Republic of Croatia, have made a political commitment to implement the Agenda, with particular emphasis on the need to involve all stakeholders in sustainable development, from state and local institutions, civil society organizations, academia and the private sector, as well as the media. Despite the importance of sustainable development for the prosperity of a democratic society and the fact that some scholarly research on lifestyle journalism has attracted some attention and emphasized the importance of lifestyle journalism, it seems that lifestyle magazines in Croatia not only rarely publish articles related to sustainable society, but also when they do published them they are most often positioned in less important places and lacking an announcement on the cover. This proves that not enough attention is paid to them, even though they are of key importance for the prosperity of our society and the community as a whole, and this should certainly be the focus of further study.

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# INQUIRY INTO CONNECTION BETWEEN CROATIAN EMIGRATION AND INTENTIONS TO START BUSINESS

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## **ABSTRACT**

*In this paper the authors explore why Croatian emigration occurs in such numbers and why is it preferred over starting your own business and making a desired life in Croatia. At the beginning the authors presented the entrepreneurship demographics and trends, as well as the Croatian emigration trends in last two decades. This was a foundation to construct survey in two parts for two different types of respondents: the first part included a survey of people who emigrated from the Republic of Croatia to get a closer insight into why people prefer to move out than to start their own business; the second part included a current students survey to see their plans for emigration and potential entry into entrepreneurship when they finish their studies. The results show that Croatian emigrants and students look for a better job, more organized state and that they do not want to start their own business in Croatia mostly because of lack of knowledge and financial resources.*

**Keywords:** *emigration, starting business, business closure, motivation for entrepreneurship, entrepreneurial obstacles, entrepreneurial support*

## **1. INTRODUCTION**

In recent years we witness a strong increase in Croatian population in search of a better life abroad. Germany, Ireland, Denmark and others received the status of the promised countries where everyone will get a job and will be much better off than in Croatia. The reasoning behind these trends is to easier find better paid job that can support them and their family. Part of them is dissatisfied with the job they have in Croatia while the others have no job at all. The question we set in this paper is: Why do Croatian people emigrate instead of trying to start their own business? There are many stigmas and prejudices regarding the launch of your own business - not everyone was born as an entrepreneur, starting and running your own company is quite complicated and stressful and it is important to have a lot of one's money to start and run the business. Our main assumption is that when having too little information about this process, people tend to be discouraged from starting their own business. They feel that entrepreneurial success is questionable without all the necessary knowledge and financial sources. In the first part of the paper we describe the ways how a person can start a business and then present some data on the Croatian entrepreneurial demographics. After that, we present and analyse the data about the latest Croatian emigration trends. The following chapter comprises the results of the survey data collected by two questionnaires. The first one consisted of 17 questions regarding the reasons for emigration from Croatia and the second had a set of 9 questions about present students' plans for starting their own business of emigrating after completing their studies. An analysis of collected data and resulting discussion try to find out the reasons behind desirability for moving abroad and avoiding starting their own business in their homeland.

## 2. DEMOGRAPHICS OF CROATIAN ENTERPRISES

A person can enter business world in more different ways, that is the most common ones are starting your own company, inheriting family business, buying an existing enterprise or starting a franchise based business (Buble & Kružić, 2006; Kolaković, 2006; Škrtić, 2011; Erceg 2017). Some of these ways carry more risks - e.g. starting your own company, because you have to build our customers circles and reputation of the enterprise is still unknown to the market; whilst the others are less risky - your company already has buyers and track record with partners, in family business you all are connected and work together towards business success or a business can rely on the good image of the franchising company in case you are buying business format franchise. But these other forms also have risks (hidden flaws for a buyer, unprofessionalism and nepotism in family business or lack of independence in franchise). In Croatia micro, small and medium-sized enterprises (SMEs) employ about three quarters (74.3%) of all employees in business entities in Croatia in 2019, when they also achieved 60.3% of total revenues in Croatia. They participate in 52.9% of total exports and have on average 4 employees. In the period from 2015 to 2019, there is a continuous growth of SMEs in numbers, but in their productivity as well. People with a higher level of education are more likely to see opportunities, they are more convinced that they have the necessary knowledge and skills to launch a business venture, and they are better networked with entrepreneurs. Even though, there is a significant gap between the high perception of personal abilities to launch a business venture in Croatia (75%) and lower levels of opportunity recognition (47.2%) in 2020, which raises the question of how the people think they are able to run a business venture, but do not recognize business opportunities. This fact questions the role and effectiveness of the education system (Alpeza *et al.*, 2020). The Total Entrepreneurial Activity (TEA) Index totalling 12.7%, is above the EU average showing that Croats enter the entrepreneurship world, but the Motivational Index (ratio of TEA Opportunity to TEA Necessity) is among the lowest among the EU countries in GEM research (e.g. 1.62 in Croatia according to 3.75 in Sweden). Additionally, in 2020 there is a decrease in the TEA index in the age group 25-34 and growth in age groups over 45 years. (Singer *et al.*, 2021). Necessity Entrepreneurs often consider this a temporary solution and are not willing to invest resources, which reduces their survival rate due to poor preparedness, an inappropriate knowledge and skills to form their market, and lack of innovation. In order to prevent this, the entrepreneurial environment should recognize the difficulties and provide the necessary services such as education and counselling. (Singer *et al.*, 2021) This is in line with the European Commission EntreComp framework for development of entrepreneurial skills (one of 8 key competences) during a lifelong learning process (European Commission, 2022). According to the data of the Central Bureau of Statistics in 2019, 16,571 legal entities were founded while 1.334 of them were deleted from the business registers. The grades of experts in GEM research show that only physical infrastructure (telecommunications and traffic) and the dynamics of the domestic market are favourable to enterprise activity in 2019 and 2020. (Singer *et al.*, 2021) Particularly limiting components of the entrepreneurial environment in Croatia are regulatory framework, significant barriers to market entry, a low level technology transfer and an insufficient contribution of primary and secondary education to the development of youth entrepreneurial competencies. In 2019, the most common causes for closing were associated with the problems of business profitability (one quarter of all closures), about one fifth was due to tax and administrative burden and about one sixth because of finding another job or business opportunity. (Singer *et al.*, 2021) But in year 2020, the main reason for closing their business was emerging of COVID-19 pandemic (21% of cases). The unprofitability reason fell to 17%, but the tax burden stays stable, which raises concerns of too complicated system for small entities (Alpeza *et al.*, 2020).

### 3. EMIGRATION TRENDS OF CROATIAN POPULATION

In Croatia, migrations began to be active in the 15th century because of the conflict between different empires in the territory of Croatia. Since then, Croatia has been affected by several emigration waves. The main reasons why Croats want to leave Croatia (push factors) can be divided into four categories (Vukorepa, 2018; Jeric, 2019):

- a) Economic reasons - unemployment, poor living and working conditions, salaries;
- b) Political Reasons - unorganized state, politicians and parties that do not make changes in the direction of improving economy, corruption;
- c) Climate reasons - rainy, floody and dry areas;
- d) Social and cultural reasons - discrimination, lack of educational services or perspective for family.

The advantage of emigration is the reduced rate of unemployment in the country and sending money to the family members that stayed in Croatia. If individuals return to Croatia, the positive return effects are often savings for family, new knowledge and skills acquired and the possibility of making business networks. However, the disadvantages are severe; young people often emigrate in fertile age, particular industries face lack of workers and there is a significant brain drain, which together with other negative demographic trends causes destabilization in economy, and especially in the systems of social and retirement security (Župarić Iljić, 2016). More and more highly educated young people leave Croatia for the structural differences of the education system outcomes and the demand in the labor market. In addition to young people, emigrants are also quite often the scientists who believe that their jobs in another country would provide them with better conditions for research and career success (Vukorepa, 2018; Jeric, 2019). According to the data of the Central Bureau of Statistics (CBS), in the period from 2001 to 2020, the total number of Croatian population migrations was 377 thousand emigrants, and there circa 330 thousand immigrants. Between 2001 and 2008 we see that the number of emigrants varies, but since 2009, this number begins a constant grow, especially after 2014 so that in years 2017-2019, the annual number of emigrants was six fold compared to 2001. These changes in the population movement can be seen in figure 1.

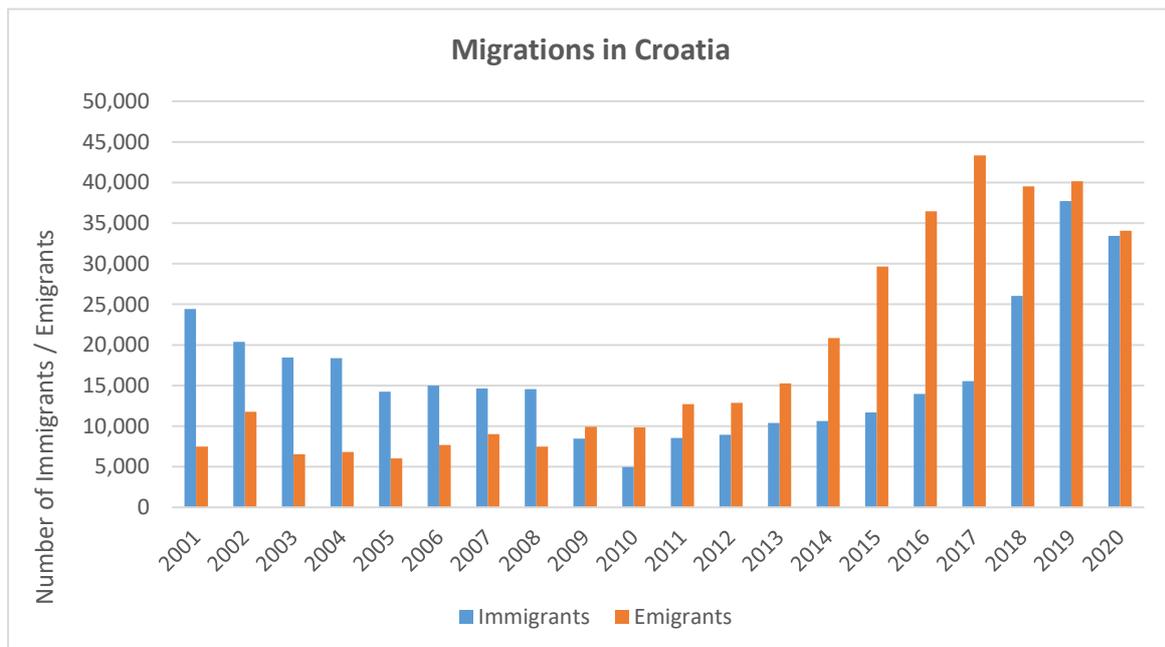


Figure 1: Migrations in Croatia 2001-2020  
(Source: CBS, 2020;2021)

The first observed period until the economic crisis in 2008 shows that there were more immigrants than emigrants. But as Croatia was severely hit by crisis and some internal problems became more evident (obsolete business premises and equipment, high indebtedness with consumer loans and with particularly numerous housing loans tied to Swiss francs), it spurred the first rise of the emigration flows. Since then the emigration accelerated, resulting in rising tempo from 2014 when many EU older members allowed for Croats to work without having to obtain foreign workers' permits. As the Draženović *et al.* (2018) note that emigration rates from new members (the ones joining EU from 2004 on) to other EU countries grow after accession to EU and remain high in certain period which is now observable in Croatia as well. On the other hand, immigrants are often registered multiple times because foreign workers from many countries outside Europe apply for work permits each year. Additionally, Croats moving abroad have no real incentives to officially report moving abroad, but are more prone to do so in the destination country for getting access to social security services. Therefore, indirect emigration estimates show that emigration from Croatia to the EU countries in the years after the accession might be cca. 2.6 times higher than the officially registered numbers in Croatian registers (Župarić Iljić, 2016; Draženović *et al.*, 2018).

#### **4. SURVEY ON REASONS FOR EMIGRATION AND FUTURE PLANS FOR EMIGRATION**

In order to get closer insight into the reasons for emigration of the Croatia population and look into the intentions for emigration of current students we constructed two questionnaires. The first one consisted of 17 questions regarding the reasons for emigration from Croatia. The second one had a set of 9 questions about current students' plans for the time after finishing their studies. In this one we were particularly interested in finding out if they would like to start their own business in Croatia or would they emigrate and look for the job abroad after completing their studies. The questionnaires were created in the Google forms application and were shared through social networks. The surveys were open for participants during two-week period in June 2021. The participants are completely anonymous. Our populations of interest were the people who moved from Croatia in recent years (in the last 5 years, more than 200,000 people) and currently active students who study in Croatia (around 100,000 people currently studying). Total of 172 respondents participated in the survey: 93 respondents fulfilled the survey on the reasons for emigration, and 79 respondents filled the survey on their intentions of emigration after finishing studying. Even though we have encompassed a small part of the population, the results are indicative and can give us insight in the motivations behind the presented trends.

##### **4.1. The emigrants sample descriptive statistics**

The survey questions included basic information on respondents, life before going abroad, the reasons for going abroad and living there, the possibilities of returning to Croatia and starting their own business. Out of the 93 respondents, 42 were men (45.2%) and 51 women (54.8%). In the sample the most of them were in the age group 31-39 years, which is expected because it is mostly a highly educated workforce in the peak of their productivity, still strong and willing to work and learn, but already with certain experience. The least respondents were in the age group 50+ because these persons are already slowly going towards retirement and are less demanded in the labour market due to their age. All the respondents have finished at least high school, whilst over 80% of them have some higher-education degree (48% with graduate study diploma). Half of them are married (26%) or live in an extramarital community (24%) while the other half are single (33%) or divorced (17%). 43% of all the respondents have kids. The participants of the survey are geographically dispersed and come from all four Croatian regions in approximately the same numbers (see figure 2).

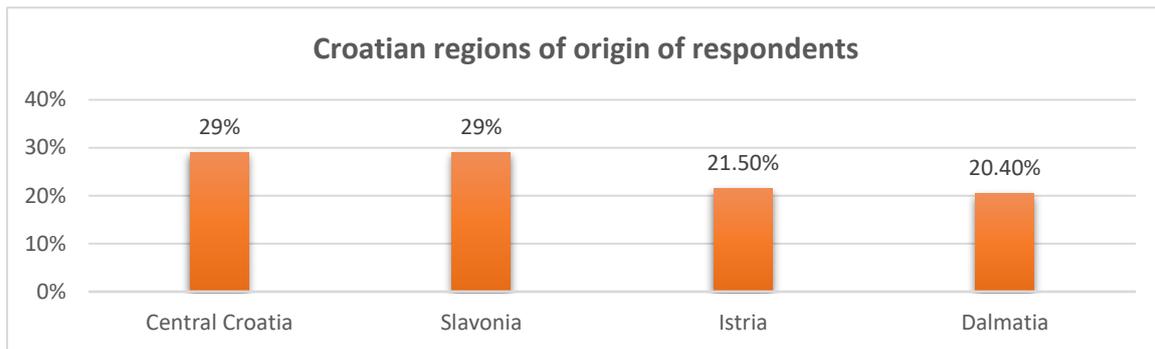


Figure 2: Regional dispersion of the emigrants  
 (Source: authors research)

#### 4.2. The students sample descriptive statistics

The survey was directed towards students with Croatian citizenship to see how many of them plan to stay in Croatia after completing their studies and, on the other hand, how many of them intend to move abroad. 79 respondents participated in the survey, which consists of questions regarding their personal characteristics, studying, and plans for their future after finishing the studying program they are currently enrolled in, especially with regard to emigration or starting their own businesses. The gender composition of participants is somewhat different then in this other part of research, the females representing 68% and males 32% of the sample. The most respondents belong to the 18-24 year-olds (62%), which is expected because the most people in Croatia proceed with higher education immediately after finishing high school. But since ever more students work along studying, they sometimes prolong finishing the enrolled programmes. The others first start working and they decide to start studying part time in some later stage. This is why 33% of our respondents belong to the age group of 25-30 year-olds. a few of them are in the age 31-49, but there were no respondents is in the 50+ age group. Also post-graduate studies usually come in later stage of a person's life.

In figure 3 we present the field of studying of the respondents:

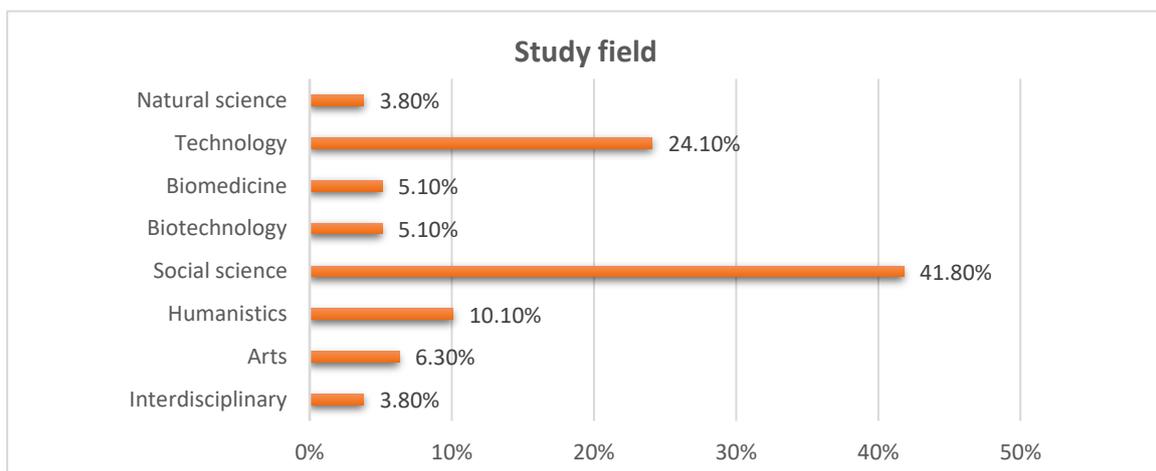


Figure 3: Study field of respondents  
 (Source: authors research)

The most participants (66%) study in technology or social sciences while other fields were less represented. The respondents sample is quite evenly divided among study years (22-25% students of the second, third, fourth and fifth year), with a bit less of the students in the first year or sixth year.

### 4.3. Results and discussion

Educational structure of our emigrant respondents is in line with earlier mentioned studies that Croatian emigrants are usually representatives of educated and skilled workforce which in the end lowers the potential of Croatian economy. Before going abroad, the respondents' employment status was in most cases unemployment, whereas 49% were actively seeking for a job but couldn't find (an acceptable) one, whilst 31% weren't looking for a job in Croatia. This implies that there is still a certain part of the income coming from unregistered sources in shadow economy or in southern parts people rely on income from tourism in inherited premises from former generations so they are not officially and actively looking for a paid job. 20% of the emigrated people were employed before moving abroad which indicates perception of better working conditions and/or better salaries which they felt couldn't get in their homeland. Most of the respondents emigrated alone, but in 32% of cases they moved abroad with their family. This result indicates that these people are probably not moving back, while the ones that left the family behind have more reasons to move back after fulfilling some personal goals. Average age of both groups is similar (35 vs. 34 years old).

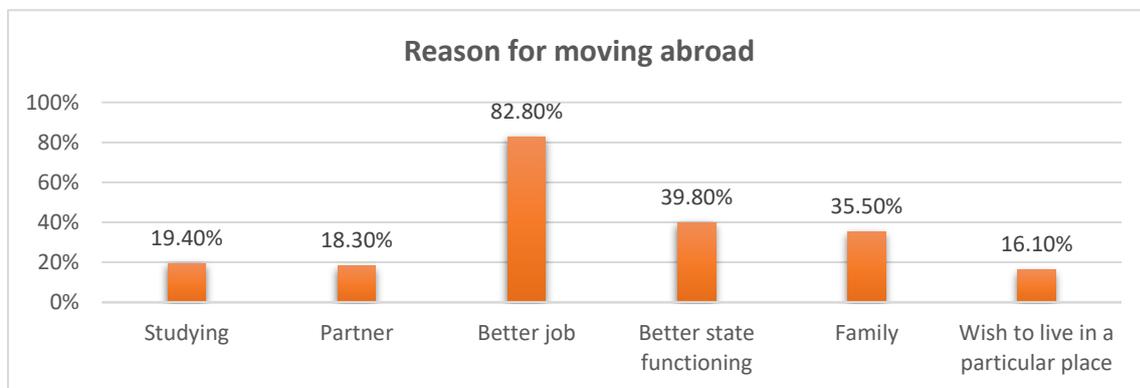


Figure 4: Reasons of emigrations  
 (Source: authors research)

In figure 4. we note that among the reasons for emigration and starting a new life abroad the respondents could choose more than just one of the offered options. The most respondents moved abroad primarily to get a better job (83%) and almost 40% of them point out better organised state as an important reason for moving abroad. Study, partner and desire for life in a particular city are almost equally represented reasons, each was important in 16-19% of cases.



Figure 5: Satisfaction with particular elements of living abroad  
 (Source: authors research)

When asked about the satisfaction with their life abroad they were offered to grade their contentment with life they have abroad, salary and accommodation on a scale of 1 to 5 (1 equals very dissatisfied, and 5 is I am very pleased). In figure 5 we can see that none of our respondents are disappointed with their choice in any of the aspects of their life abroad and only a small number chose 3 - I am neither satisfied nor dissatisfied. This shows that our emigrants obviously research their steps ahead and wisely choose what to accept and how to organize their life abroad. This further corroborates the hypothesis of skilled workforce emigration, and indicates a low probability of returning to Croatia any time soon. Moving to a new, unknown country, every person experiences differently and it can affect the human psyche positively or negatively. 4 respondents answered that they felt like a stranger abroad, while 12 of them experienced loneliness. Considering that 68% of respondents moved abroad alone, in general our emigrants feel well and accepted abroad. 63% of the respondents declared that they were better abroad than in Croatia and 71% respondents claim that they found "the greener grass" across the border. Due to the working obligations and vacation days, we can see that the most respondents travel back to Croatia once or twice a year (figure 6).

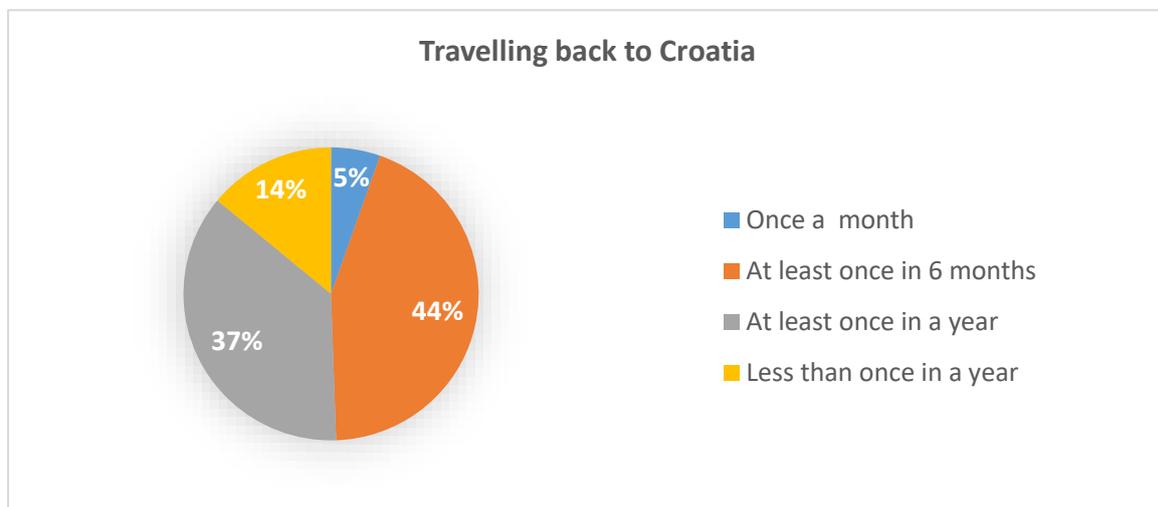
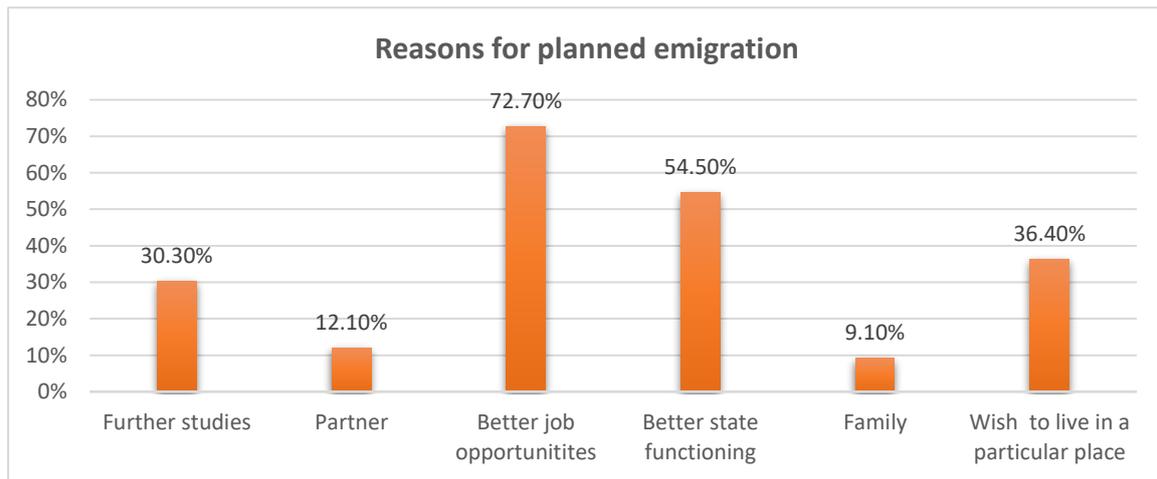


Figure 6: The frequency of visiting Croatia  
(Source: authors research)

When asked about regretting leaving Croatia and whether they wanted to return 12 respondents (13%) answered affirmatively, that is, they regretted moving abroad, while 62 respondents (67%) are satisfied with their choice. 20% of them are still not sure about their choice. This is in line with the response to the question about planning to move back where 24% of them wants to return for sure, and 31% think of this possibility when they retire. Still 45% of them are satisfied and want to stay abroad. In the last set of questions, they were asked about their wish to start a business in Croatia and more than half of them (56%) are not considering this action. The next thing we wanted to examine is why the respondents do not want to and why they did not try to start their own business. In a multiple choice question about the reasons for not wanting to start a business in Croatia they could choose between disinterest, ignorance and financial limitations. 10 respondents (11%) declared that he did not want to start his own business for disinterest, 53 respondents (57%) feel they do not have necessary skills and knowledge, while two thirds feel they have no sufficient financial resources to start a business. In the next group of our currently studying respondents 58% plan to stay in Croatia, while 42% would like to move abroad. In order to discover the cause for their desire to leave Croatia, the respondents who stated they wanted to move abroad were asked for a reasons. There was a possibility of multiple selection of offered answers. The responses are presented in figure 7.



*Figure 7: Reasons for moving abroad  
(Source: authors research)*

30% of respondents stated that they wanted to go abroad for further study. Small number of participants want to join their partners who have already emigrated. The most of them (73%) see better job opportunities abroad, whilst 55% want to leave because of the better functioning of the state. These answers are in line with previously analysed answers of people who have already emigrated, where most people also find better job opportunities and state organization as primary factors for emigration. But we see the difference in the last reason which is more emphasized in this younger generation of people who still haven't organised their lives here (with house, setting up a family etc.) so they want to fulfil some of their wishes to try to live in their dream places after studying. Then they were also asked about intentions to start their own business and similarly to the other group and even in a bit higher share they are not considering this action (67% vs. 56% in emigrants group). The reasoning behind these intentions is also similar with the most of them thinking they have no necessary skills and knowledge (53% vs. 57% in emigrants group) and do not have sufficient financial resources (55% vs. 67%). A bit smaller percentages are due to the fact that 23% of the students is disinterested in the idea of starting their business (compared to only 11% in emigrants group). Last question asked the students what do they know about the entrepreneurship support programmes (financial aid, counselling support within the organizations of entrepreneurial structure...). less than a third (28%) of them said they were acquainted with this kind of programmes, but 24% have known nothing, while the rest 48% was aware of them and have heard these programmes existed, but they do not know nothing concrete about them (eligibility, what you can get, where to apply etc.).

## 5. CONCLUSION

The starting idea for this research was ignited by question why people were more willing to leave their family and the known environment than to stay and try to create the life they wanted here. By exploring entrepreneurship conditions and businesses in Croatia we presented a clearer picture why this could be so. When entering entrepreneurship world, it is important to choose the right way to start to reduce risks and founding a start-up company from scratch is the riskiest way. Our inquiry into the reasons why people choose emigration over setting-up their own business here revealed and further corroborated findings of a GEM study. We conducted two surveys on different types of respondents which were shared on social networks among students with Croatian citizenship and expatriates from Croatia, a total of 172 respondents. The limitations of this study are small numbers of respondents compared to populations, but this is just a first step to see our closer environment.

By comparing the final results, we were able to conclude: respondents do not want to start their own business in Croatia because of insufficient knowledge and skills and due to financial limitations. Even though there are many support programmes (mostly financial and counselling) most of the people are unaware of them or just unfamiliar with how they work. This is in concordance with conclusions and recommendations of the GEM research in Croatia that educational system lacks the courses and programmes from the earlier ages, where overall population would be able to acquire entrepreneurial skills, especially in the field of opportunity recognition. These are also one of the key competences for lifelong learning in the EU EntreComp framework. The counselling assistance infrastructure exists (entrepreneurial centres, entrepreneurial incubators, entrepreneurial zones and technological centres), the financing programmes are available (HAMAG-BICRO, HBOR at the frontline) we just have to be aware and know how and where to reach for the assistance. Through education and multimedia channels, people should be encouraged to dare to take that step and start their own businesses, create a good life for their family and stay in Croatia. This would prevent the departure of young highly educated labour and enabled Croatia to realize the potentials.

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# PROTECTION OF THE RIGHT TO TRIAL WITHIN A REASONABLE TIME IN THE ADMINISTRATIVE DISPUTE IN THE REPUBLIC OF NORTH MACEDONIA

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## ABSTRACT

*The subject of this research is the conceptual determination of the right to a trial within a reasonable time, the positive legal regulation of this principle in the Republic of North Macedonia, the procedure for exercising protection of the right to a trial within a reasonable time, as well as the factors influencing the trial within a reasonable time. The purpose of the research is to analyze the manner of achieving protection of the right to trial within a reasonable time in administrative dispute, as well as to present the innovations in administrative legislation that should directly affect the strengthening of efficiency in the operation of public bodies and administrative courts that decide on the rights, obligations and legal interests of individuals and legal entities. In order to achieve the set goal in this paper, a positive legal analysis of the regulations governing this right will be performed, as well as analysis of empirical data from the actions of the competent courts in achieving judicial protection of this right, but only for cases in the field of administrative matter.*

**Keywords:** *trial within a reasonable time, administrative procedure, administrative dispute, efficiency, judicial protection*

## 1. INTRODUCTION

Guaranteeing the regulations and consistent respect for the right to a trial within a reasonable time guarantees legal certainty, ensures a fair and equitable procedure, strengthens trust in the institutions and courts. The main purpose of the trial within a reasonable time is to protect the parties from excessive delay in the procedure in which their rights, obligations and legal interests are decided. "Guaranteeing the right to a trial within a reasonable time means protecting all parties to the dispute from too long procedural delays because delayed justice equals injustice. The purpose of this right is to put an end to the legal uncertainty in which a person finds himself in relation to his civil status or criminal procedure. The interest is on the person concerned, but also in the function of legal certainty. The court considers the factors influencing the length of the procedure: the complexity of the case, the applicant's conduct, the conduct of the authorities and the risk to the applicant. A trial within a reasonable time is an extremely important precondition because it sets the framework for a fair trial and equitable procedure."<sup>1</sup> The right to a trial in a reasonable act is regulated by several international acts. For example, according to the Universal Declaration of Human Rights, everyone has the right to an effective remedy before a national tribunal for acts infringing fundamental rights under the Constitution or the law and to have an equal right to a fair and public trial by an independent and impartial tribunal of his rights and obligations and in the conditions of any criminal charge

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<sup>1</sup> Human Rights, Jovan Ananiev (first and tenth chapters), Besa Arifi (second and third chapters), Natasha Gaber-Damjanovska (eighth, eleventh and twelfth chapters), Mirjana Lazarova-Trajkovska (fifth, sixth and ninth chapters) Zaneta Poposka, (introduction and fourth chapter), Slavica Cubric, (seventh chapter), Skopje: OSCE, 2018, <https://www.osce.org/files/f/documents/7/0/385947.pdf> (original Човекови права, Јован Ананиев (прва и десетта глава), Беса Арифи (втора и трета глава), Наташа Габер-Дамјановска (осма, единаесетта и дванаесетта глава), Мирјана Лазарова-Трајковска (петта, шеста и деветта глава), Жанета Попоска (овед и четврта глава, Славица Чубриќ (седма глава), Скопје : ОБСЕ, 2018, <https://www.osce.org/files/f/documents/7/0/385947.pdf>

against him.<sup>2</sup> The Charter of Fundamental Rights of the European Union also provides for the right to an effective remedy and a fair trial.<sup>3</sup> The European Convention for the Protection of Human Rights and Freedoms, within the framework of the provision governing the right to a fair trial, provides that everyone has the right to a fair and public hearing before an independent and impartial tribunal established by law to evaluate and establish their civil rights and obligations, or the merits of any criminal charges against them.<sup>4</sup> Article 13 of the Convention obliges member states to ensure that any individual who has a dispute concerning the violation of his or her rights and freedoms as set out in the Convention has an effective remedy before a national authority.<sup>5</sup> Recommendation Rec (2010) 3 of the Committee of Ministers of the Council of Europe on effective remedies for excessive length of proceedings, states that each member state at national level should provide in domestic law a remedy for the protection of the right to trial within a reasonable time.<sup>6</sup> In this context is Recommendation Rec (2004) 6 of the Committee of Ministers to member states on the improvement of domestic remedies.<sup>7</sup> A trial within a reasonable time can be directly related to the principle of efficiency. This is because the principle of efficiency as an obligatory principle for acting of public bodies in the administrative procedure according to the Law on General Administrative Procedure (LGAP), but also a mandatory principle in the administrative-court procedure according to the Law on Administrative Disputes (LAD), obliges the competent institutions to complete the procedures without delay. Thus, in accordance with the principle of economy and efficiency of the procedure provided by the LGAP 2015<sup>8</sup>, the procedure should be conducted in the simplest possible way, without delay and with as little cost as possible for the parties, and still to ensure full respect of the rights and legal interests of the parties and complete determination of the factual situation. While, in accordance with the principle of efficiency provided in the LAD, the court will conduct the procedure quickly, without the use of unnecessary actions and costs and will make its decision within a reasonable time, i.e., no later than nine months from the

<sup>2</sup> Article 8 and Article 10 Universal Declaration of Human Rights Adopted and published in Resolution 217 A (III), dated December 10, 1948, at Gen.p/ % 20mehanizmi% 20za% 20zastita% 20na% 20covekovite% 20prava /% D0% 9EN / 1% 20-% 20% D0% A3% D0% BD% D0% B8% D0% B2% D0% B5% D1% 80% D0% B7% D0% B0% D0% BB% D0% BD% D0% B0% 20% D0% B4% D0% B5% D0% BA% D0% BB% D0% B0% D1% 80% D0% B0% D1% 86% D0% B8% D1% 98% D0% B0% 20% 20% D0% B7% D0% B0% 20% D1% 87% D0% BE% D0% B2% D0% B5% D0% BA% D0% BE% D0% B2% D0% B8% D1% 82% D0% B5% 20% D0% BF% D1% 80% D0% B0% D0% B2% D0% B0.pdf

<sup>3</sup> Article 47, CHARTER OF THE FUNDAMENTAL RIGHTS OF THE EUROPEAN UNION (2000 / C 364/01), <https://www.healthrights.mk/pdf/Pravnici/Regionalni%20dokumenti%20i%20mehanizmi%20za%20z%20z%20 20Unija / 1.% 20% D0% 9F% D0% BE% D0% B2% D0% B5% D0% BB% D0% B1% D0% B0% 20n% D0% B0% 20% D0% BE% D1% 81% D0% BD% D0% BE% D0% B2% D0% BD% D0% B8% D1% 82% D0% B5% 20% D0% BF% D1% 80% D0% B0% D0% B2% D0% B0 % 20% D0% BD% D0% B0% 20% D0% 95% D0% B2% D1% 80% D0% BE% D0% BF% D1% 81% D0% BA% D0% B0% D1% 82% D0 % B0% 20% D1% 83% D0% BD% D0% B8% D1% 98% D0% B0.pdf> and [https://eeas.europa.eu/archives/delegations/the\\_former\\_yugoslav\\_republic\\_of\\_macedonia/documents/more\\_info/publications/publications/publications/publications/publications/publications/chart .pdf](https://eeas.europa.eu/archives/delegations/the_former_yugoslav_republic_of_macedonia/documents/more_info/publications/publications/publications/publications/publications/publications/chart .pdf), CHARTER OF FUNDAMENTAL RIGHTS OF THE EUROPEAN UNION 2012/C 326/02, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12012P/TXT>

<sup>4</sup> Article 6 of the European Convention for the Protection of Human Rights, [https://www.echr.coe.int/Documents/Convention\\_MKD.pdf](https://www.echr.coe.int/Documents/Convention_MKD.pdf), the Republic of Macedonia ratified the European Convention for Human Rights and Fundamental Freedoms on April 10, 1997, <https://www.biroescp.gov.mk/%D0%B7%D0%B0-%D0%BA%D0%BE%D0%BD%D0%B2%D0%B5%D0%BD%D1%86%D0%B8%D1%98%D0%B0%D1%82%D0%B0/>, [http://www.biroescp.gov.mk/wp-content/uploads/2016/12/1.-Convention\\_MKD.pdf](http://www.biroescp.gov.mk/wp-content/uploads/2016/12/1.-Convention_MKD.pdf)

<sup>5</sup> Article 13 of the ECHR - Everyone whose rights and freedoms as set forth in this Convention are violated shall have an effective remedy before a national authority notwithstanding that the violation has been committed by persons acting in an official capacity, [https://www.echr.coe.int/Documents/Convention\\_MKD.pdf](https://www.echr.coe.int/Documents/Convention_MKD.pdf)

<sup>6</sup> Recommendation CM/Rec(2010)3 of the Committee of Ministers to member states on effective remedies for excessive length of proceedings (Adopted by the Committee of Ministers on 24 February 2010 at the 1077th meeting of the Ministers' Deputies), [https://search.coe.int/cm/Pages/result\\_details.aspx?ObjectID=09000016805cf8e9](https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805cf8e9)

<sup>7</sup> Recommendation Rec(2004)6 of the Committee of Ministers to member states on the improvement of domestic remedies (adopted by the Committee of Ministers on 12 May 2004, at its 114th Session), [https://search.coe.int/cm/Pages/result\\_details.aspx?ObjectID=09000016805dd18e](https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805dd18e)

<sup>8</sup> Article 7 of the Law on General Administrative Procedure, Official Gazette of RM, no. 124 from 23.07.2015

date of submission of documents or creation of conditions to decide on the lawsuit.<sup>9</sup> Analyzing these provisions, we can conclude that the competent authorities in decision-making should equally consider the timeliness, but also the quality of the decisions they make, which means that speed should not reduce the legal protection. What should be especially emphasized is that in accordance with the principle of efficiency provided by the LAD for the first time in the Republic of North Macedonia (RNM) the decision-making deadline for the court is determined. For the party, besides providing legal certainty, this also provides some predictability regarding the termination of the procedure for protection of its right. An addition to strengthening the efficiency in the administrative procedure and administrative dispute are the provisions that refer to the electronic communication between the bodies, but also between the bodies and the parties. The provisions that refer to the specification of the deadline for deciding of the first and second instance body in the administrative procedure, as well as the provisions that regulate the institute of administrative silence (or failure to make a decision within the legally set time limit). So according to the LGAP, the administrative procedure in the first instance, initiated upon request, unless otherwise provided by law, shall be completed as soon as possible, and at the latest within 30 days from the day of its initiation. While, the procedure on the appeal of the second instance body should be completed without delay, and no later than 60 days from the day of submitting the appeal and all documents of the case from the first instance body to the second instance body.<sup>10</sup> The LAD also provides for the possibility of imposing a fine on the person who passed the disputed act, i.e., took the disputed action, or the responsible person, i.e., the authorized person within the defendant, i.e., in the body that has the documents that were not submitted due to unjustified reasons.<sup>11</sup>

## **2. POSITIVE LEGAL REGULATION OF THE LEGAL PROTECTION OF THE RIGHT TO A REASONABLE TIME IN THE REPUBLIC OF NORTH MACEDONIA**

The legal protection of the right to a trial within a reasonable time in the RNM is regulated by the Law on Courts. Specifically, this law stipulates which court is competent to act to protect this right, how the procedure is initiated, the content of the request, the competencies of the Supreme Court in deciding and the right to appeal. According to this law, when deciding on civil rights and obligations and deciding on criminal responsibility, everyone has the right to a fair and public trial within a reasonable time before an independent and impartial court established by law.<sup>12</sup> Also, the trial within a reasonable time is provided as one of the basic principles in court procedures, including legality and legitimacy, equality of the parties, fairness, publicity and transparency, adversarial principle, double degree principle, orality, right of defence, i.e., advocacy, free evaluation of evidence and economy.<sup>13</sup> In RSM, the Supreme Court of RSM is the competent court for protection of the right to trial within a reasonable time. Namely, among the competencies of the court it is stated that this court decides at the request of the parties and other participants in the procedure for violation of the right to trial within a reasonable time, in a procedure determined by law before the courts in the Republic of North Macedonia in accordance with the rules and principles with the European Convention on Human Rights and Fundamental Freedoms and based on the case law of the European Court of

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<sup>9</sup> Article 11 of the Law on Administrative Disputes, Official Gazette of RM, no. 96 from 17.5.2019

<sup>10</sup> Article 112 of the Law on General Administrative Procedure, Official Gazette of RM, no. 124 from 23.07.2015

<sup>11</sup> Article 33 of the Law on Administrative Disputes, Official Gazette of RM, no. 96 from 17.5.2019

<sup>12</sup> Article 6 paragraph 2 of the Law on Courts ("Official Gazette of the Republic of Macedonia" No. 58/06, 62/06, 35/08, 150/10, 83/18, 198/18 and "Official Gazette of the Republic of North Macedonia" No. 96/19)

<sup>13</sup> Article 10 of the Law on Courts ("Official Gazette of the Republic of Macedonia" no. 58/06, 62/06, 35/08, 150/10, 83/18, 198/18 and "Official Gazette of the Republic of North Macedonia" no. 96/19)

Human Rights.<sup>14</sup> These cases are resolved by the Division for trial within a reasonable time in the Supreme Court.<sup>15</sup>

## **2.1. Procedure for exercising protection of the right to trial within a reasonable time in an administrative dispute**

The procedure for exercising the right to protection at trial within a reasonable time is regulated by the Law on Courts. The procedure for exercising the protection of the right to a trial within a reasonable time is implemented in several stages, namely the initiation of a request by the applicant, the decision of the Supreme Court and the adoption of a decision. The applicant, ie the person who can submit a request for exercising this right is the person whose interest is directly affected by the postponement of the procedure, ie the person who appears as a plaintiff in the administrative court procedure. One of the conditions for submitting a request for exercising this right is that the applicant has previously used all legal remedies provided in the legal solutions (such as, for example, an appeal before a second instance public body, a lawsuit before an Administrative Court, an appeal before the Supreme Administrative Court and other legal remedies provided in accordance with the substantive regulations and the Law on Administrative Disputes). The request for protection of the right to trial within a reasonable time to the Supreme Court may be submitted by the party in the course of the procedure before the domestic courts, and within a period of six months as of the day the decision becomes legally valid at the latest. In terms, the content of the Request the law stipulates that the request should contain data about the party submitting the request and its legal representative, data about the case and the procedure considered by the party to have violated the right to trial within a reasonable period of time, elaboration of the reasons for the alleged violation of the right to trial within a reasonable period of time, statement for claiming fair compensation, and signature of the party submitting the request. In case the request does not contain the stated data, the court may require from the applicant to further edit the request. If the applicant does not regulate the request, the Supreme Court of RNM can reject the request for protection of the trial within a reasonable time as incomplete. Upon receipt of the request referred to in Article 36 paragraph (1) of this Law, the Supreme Court of the Republic of Macedonia shall immediately, and within a period of 15 days at the latest, require from the court of first instance to submit a copy of the acts from the case file, and if necessary, a statement from the court of higher instance for the duration of the procedure conducted before it. After the request is received, the Supreme Court will immediately, and within a period of 15 days at the latest, require from the court of first instance to submit a copy of the acts from the case file, and if necessary, a statement from the

<sup>14</sup> Article 35 of the Law on Courts

The Supreme Court of the Republic of Macedonia has jurisdiction:

- 1) to decide in the second instance against the decisions of its councils when it is determined by law;
- 2) to decide in the third and last instance on appeals against the decisions of the appellate courts;
- 3) to decide on extraordinary legal remedies against the final decisions of the courts and the decisions of their councils when it is determined by law;
- 4) to decide on a conflict of jurisdiction between the basic courts in the area of different courts of appeal, conflict of jurisdiction between appellate courts, conflict of jurisdiction between the Administrative Court and another court, conflict of jurisdiction between the Higher Administrative Court and another court and to decide on transfer of local jurisdiction in these courts;
- 5) to decide at the request of the parties and other participants in the procedure for violation of the right to trial within a reasonable time, in a procedure determined by law before the courts in the Republic of Macedonia in accordance with the rules and principles established by the European Convention on Human Rights and Fundamental Freedoms; based from the case law of the European Court of Human Rights and to perform other tasks determined by law.

<sup>15</sup> Article 19 of the Rules of Procedure of the Supreme Court of the Republic of North Macedonia, Official Gazette of RNM, no. 14 from 20.1.2022

[http://www.vsrn.mk/wps/wcm/connect/vsrn/2415ec6f-f0e0-493b-b8de-f034b584366d/%D0%94%D0%95%D0%9B%D0%9E%D0%92%D0%9D%D0%98%D0%9A+%D0%B7%D0%B0+%D1%80%D0%B0%D0%B1%D0%BE%D1%82%D0%B0+%D0%BD%D0%B0+%D0%92%D0%A1%D0%A0%D0%A1%D0%9C+%D0%A1%D0%BB%D0%B2%D0%B5%D1%81%D0%BD%D0%B8%D0%BA+14-2022\\_1.pdf?MOD=AJPERES&CVID=nXuMKNN&CVID=nXuMKNN&CVID=nXuMKNN](http://www.vsrn.mk/wps/wcm/connect/vsrn/2415ec6f-f0e0-493b-b8de-f034b584366d/%D0%94%D0%95%D0%9B%D0%9E%D0%92%D0%9D%D0%98%D0%9A+%D0%B7%D0%B0+%D1%80%D0%B0%D0%B1%D0%BE%D1%82%D0%B0+%D0%BD%D0%B0+%D0%92%D0%A1%D0%A0%D0%A1%D0%9C+%D0%A1%D0%BB%D0%B2%D0%B5%D1%81%D0%BD%D0%B8%D0%BA+14-2022_1.pdf?MOD=AJPERES&CVID=nXuMKNN&CVID=nXuMKNN&CVID=nXuMKNN)

court of higher instance for the duration of the procedure conducted before it. Upon the submitted request, the court decides in a panel of three judges in a non-public session, but as an exception, the court may decide to hear the party submitting the request and the representative of the court the procedure of which is subject of the submitted request.<sup>16</sup> In deciding on the request, the Supreme Court decides on the basis of Articles 35 and 36 of the Law on Courts and Article 6 paragraph 1 of the European Convention for the Protection of Human Rights. Pursuant to these regulations, the Supreme Court assesses four criteria, as follows: whether all legal remedies have been used before, assesses the complexity of the case, the behavior of the parties in the procedure, (i.e., whether the applicant postponement of the procedure, whether the public body by taking or not taking certain actions contributed to the postponement of the procedure) and the behavior of the court that acted (whether the administrative courts in deciding in an administrative dispute influenced the delay in exercising the legal protection of the party).<sup>17</sup> Regarding the request, the Supreme Court decides with a decision. The analysis of several decisions made by the Supreme Court, published on the website of this court, concludes that in deciding, the court may issue a decision rejecting the request (for example, when the request is incomplete), a decision refusing the request (for example, when the request is unfounded) and decision adopting the request. The Supreme Court will issue a decision adopting the request in case it determines that the request for protection of the right to a trial within a reasonable time is timely, allowed and justified and when it determines that there is a violation of the right to a trial within a reasonable time. With the dispositive of this decision, the court determines that there is a violation of the right to a trial within a reasonable time by specifically stating the procedure, i.e., the case stating the number of the case under which it is registered in the administrative court. The dispositive of decision also determines the deadline within which the court before which the procedure is ongoing, must decide on the right or obligation. The dispositive of decision also states the awarded fair compensation and the payout deadline. The fair compensation shall be borne by the Court Budget and shall be paid within a period of three months as of the day the decision of the Supreme Court becomes legally valid (decision of the Supreme Court enters into force).<sup>18</sup> Equitable compensation is also provided for in Article 41 of the ECHR. In deciding, the court first determines the legally relevant period. Thus, according to the case law of the European Court of Human Rights, the meaning of Article 6 paragraph 1 of the European Convention for the Protection of Human Rights and Fundamental Freedoms, a dispute in the administrative procedure arises on the day when the party first declares a regular remedy - appeal the first instance decision, i.e., a lawsuit for initiating an administrative dispute

<sup>16</sup> Article 36-a paragraph 2 of the Law on Courts, ("Official Gazette of the Republic of Macedonia" No. 58/06, 62/06, 35/08, 150/10, 83/18, 198/18 and "Official Gazette of the Republic of Macedonia" Northern Macedonia "No. 96/19)

<sup>17</sup> For criteria for assessing the length of the procedure, see also Katarina Manojlovic-Andric Ljubica Milutinovic Snezana Andrejevic Vanja Rodic Majda Krsikapa Milan Bajic, Criteria for Assessing the Violation of the Right to Trial within a Reasonable Time

<https://rm.coe.int/kriterijumi-za-ocenu-povrede-prava-na-sudjenje-u-razumnom-roku/16808c5848> and Снежана Андрејевић, Љубица Милутиновић, Ивана Крстић, Силвија Пановић-Ђури, Душан Игњатовић, Јован Миљковић, Приручник за обуку судија суђење у разумном року, Мај, 2016 (Snezana Andrejevic, Ljubica Milutinovic, Ivana Krstic, Silviya Panovic-Djuric, Dusan Ignjatovic, Jovan Miljkovic, Manual for the Training of Judges Trial within a Reasonable Time, May, 2016)

<https://www.pars.rs/images/biblioteka/Prirucnik%20za%20obuku%20sudija%20sudenje%20u%20razumnom%20roku.pdf>

<sup>18</sup> See example Decision of the Supreme Court PSRRU. No. 57/2018 ( meaning of the PSRRU is Case for trial within a reasonable time in administrative cases), [http://www.vsrn.mk/wps/portal/vsrn/sud/odluki!/ut/p/z1/jc9NDolwEAXgs3CCGbTQsiwKqBSJYgN0Y4gSUsNfDHP-UReuRGc3yfdeZkBBBqot7roqBt21RT3uubKPDi5t012giEPKkEfSEzJYb6ztHNIXsANCKIUoWLJ3kXtI2cHhGPgI6p88fhn-Z34CqOn6FNQv8gYTL-bjDfQD4pVPkUvPtDjbzYggkDw7dNPX-qSHqDuXNeTD9VZC30iZ4cXqK8N4ADsOtYs!/dz/d5/L2dBISeVz0FBIS9nQSEh/?court=A4740E12-387B-4203-8110-940C80A426BF&dateVerifyTo=&dateVerifyFrom=&casenumber=%D0%9F%D0%A1%D0%A0%D0%A0%D0%A3#Z7\\_6G4408K0LOHF70AUE15A8Q24L4](http://www.vsrn.mk/wps/portal/vsrn/sud/odluki!/ut/p/z1/jc9NDolwEAXgs3CCGbTQsiwKqBSJYgN0Y4gSUsNfDHP-UReuRGc3yfdeZkBBBqot7roqBt21RT3uubKPDi5t012giEPKkEfSEzJYb6ztHNIXsANCKIUoWLJ3kXtI2cHhGPgI6p88fhn-Z34CqOn6FNQv8gYTL-bjDfQD4pVPkUvPtDjbzYggkDw7dNPX-qSHqDuXNeTD9VZC30iZ4cXqK8N4ADsOtYs!/dz/d5/L2dBISeVz0FBIS9nQSEh/?court=A4740E12-387B-4203-8110-940C80A426BF&dateVerifyTo=&dateVerifyFrom=&casenumber=%D0%9F%D0%A1%D0%A0%D0%A0%D0%A3#Z7_6G4408K0LOHF70AUE15A8Q24L4)

in a case when an appeal of the first instance decision is not allowed by law.<sup>19</sup> Then, the court assesses the complexity of the procedure, which can be considered from a procedural point of view and from a legal point of view. In procedural terms, the complexity depends on the number of parties in the procedure, resolving the previous issue, extensive evidence, more witnesses and more expertise, more lawsuits, deciding on multiple claims, imposing interim measures, residence or domicile of the parties abroad, death of a party during the procedure, finding and questioning witnesses who have changed their place of residence, acting on letters in the country and abroad, use of court translators, translation of documents, etc. The legal complexity of the case may arise due to a change in the applicable law, the application of unclear laws, the need to interpret international agreements, to distinguish jurisdiction between courts and other bodies, as well as to make a decision in a court procedure that is legally related to proceedings before another body.<sup>20 21</sup> The court also assessed whether the applicant contributed to the delay of the procedure by assessing whether in the legally relevant period the applicant was active, took action, i.e., filed legal remedies in accordance with the legal regulations indicating that his conduct there was no effect on delaying the procedure. On the other hand, the conduct of the public authorities and the court is also evaluated, i.e., whether they acted in the direction of conducting the procedure in the shortest possible time, or were inactive and inefficient, thus violating the principle of trial within a reasonable time. The procedure for protection of the right to a trial within a reasonable time in accordance with the Law on Courts is envisaged to be completed within 6 months from the day of submission the request. The dissatisfied party shall have the right, within a period of eight days as of the day of receipt of the decision, to file an appeal against the decision of the panel of the Supreme Court of the Republic of Macedonia to the Supreme Court to decide upon it. According to the provisions of the ECHR, the party has the right to appeal against the decision of the Supreme Court to the European Court of Human Rights (ECHR). The decisions of the ECHR have had an effect not only on the specific case they are dealing with here and on all future same legal situations that arise and thus influence the shaping of the practice in individual countries. The Interdepartmental Commission for the Enforcement of European Court of Human Rights Decisions is the competent body for monitoring and enforcement of ECHR decisions in cases against the Republic of North Macedonia.<sup>22</sup>

### **3. EMPIRICAL ANALYSIS OF DATA FROM THE WORK OF THE SUPREME COURT**

This chapter provides an overview of the data from the proceedings of the Supreme Court of the RSM, upon request for protection of the right to a trial within a reasonable time for administrative cases. The data are taken from the Annual Reports of the Supreme Court.

*Table following on the next page*

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<sup>19</sup> The Supreme Court of the Republic of Macedonia in the procedure on the case UI.no.26 / 2018 (previously U.no.3035 / 2007 and U- 4.no.116 / 2011) of the Administrative Court as the legally relevant period for the submitter of the request determined the period from filing an appeal against the decision. See: Decision of the Supreme Court PSRRU. No. 57/2018

<sup>20</sup> Katarina Manojlović Andrić Zvonko Mijan, Analiza pravnog okvira kojim se reguliše zaštita prava na suđenje u razumnom roku, Vijeće Evrope, april 2021, <https://rm.coe.int/analiza-pravnog-okvira-kojim-se-regulise-zastita-prava-na-su-enje-u-ra/1680a3f58d>

<sup>21</sup> For an assessment of the complexity of the proceedings, see also: Davorka Lukanović-Ivanišević, Trial within a Reasonable Time in Administrative Court Proceedings - Practice of the Supreme Court of the Republic of Croatia, Europeanization of Administrative Trial in Croatia, Institute of Public Administration, Zagreb Zagreb, 2014, [https://iju.hr/Dokumenti/pub\\_6.pdf](https://iju.hr/Dokumenti/pub_6.pdf)

<sup>22</sup> Annual Report on the Work of the Interdepartmental Commission for the Execution of ECtHR Decisions for 2020, Skopje, 2021, Ministry of Justice, Representation Bureau of the Republic of North Macedonia before the European Court of Human Rights

Area - reasonable time in administrative cases	Unresolved cases from previous years	Newly applied items	Total in operation	Resolved cases	Unresolved cases	Resolved within a longer period of 6 months
2020	67	93	160	99	61	65
2019	72	69	141	73	68	55
2018	142	104	249	177	72	119
2017	142	165	308	166	142	122

*Table 1: Efficiency of exercising the legal protection of the right to a trial within a reasonable time*

*(Source: Annual reports on the work of the Supreme Court of the RNM)<sup>23</sup>*

Analyzing the data in Table 1 we can conclude that:

- the number of cases has been decreasing in recent years, which may indicate that administrative-court proceedings are more efficient;
- The Supreme Court records the remainder of unresolved cases every year, which directly reflects its inefficiency in deciding on these cases and
- Most of the resolved cases have been resolved for a period longer than 6 months, which does not comply with the legal deadline for deciding on a request for protection of the right to trial within a reasonable time.

Type of decisions	Resolved cases	Rejected requests	Refused request	Adopted request
2020	102	17	37	48
2019	73	12	30	31
2018	177	20	81	76
2017	166	25	61	80

*Table 2: Type of decisions for administrative cases*

*(Source: Annual reports on the work of the Supreme Court of the RNM – 2017, 2018, 2019, 2020)*

<sup>23</sup> Report on the work of the Supreme Court of the Republic of North Macedonia for 2020, [http://www.vsrn.mk/wps/wcm/connect/vsrn/a45e1912-8617-44dd-a976-9c03f31d3ff9/%D0%98%D0%B7%D0%B2%D0%B5%D1%88%D1%82%D0%B0%D1%98+%D0%B7%D0%B0+%D1%80%D0%B0%D0%B1%D0%BE%D1%82%D0%B0+%D0%BD%D0%B0+%D0%92%D0%A1%D0%A0%D0%A1%D0%9C+-+2020+%D0%B3%D0%BE%D0%B4%D0%B8%D0%BD%D0%B0+%D0%BA%D0%BE%D0%BD%D0%B5%D1%87%D0%BD%D0%B0.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE.Z18\\_L8CC1J41L0B520APQFKICD0CU3-a45e1912-8617-44dd-a976-9c03f31d3ff9-ldWzOgu](http://www.vsrn.mk/wps/wcm/connect/vsrn/a45e1912-8617-44dd-a976-9c03f31d3ff9/%D0%98%D0%B7%D0%B2%D0%B5%D1%88%D1%82%D0%B0%D1%98+%D0%B7%D0%B0+%D1%80%D0%B0%D0%B1%D0%BE%D1%82%D0%B0+%D0%BD%D0%B0+%D0%92%D0%A1%D0%A0%D0%A1%D0%9C+-+2020+%D0%B3%D0%BE%D0%B4%D0%B8%D0%BD%D0%B0+%D0%BA%D0%BE%D0%BD%D0%B5%D1%87%D0%BD%D0%B0.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE.Z18_L8CC1J41L0B520APQFKICD0CU3-a45e1912-8617-44dd-a976-9c03f31d3ff9-ldWzOgu),  
Report on the work of the Supreme Court of the Republic of North Macedonia for 2019, [http://www.vsrn.mk/wps/wcm/connect/vsrn/dfd1b280-782d-42ae-a087-9f669e8cf628/%D0%98%D0%B7%D0%B2%D0%B5%D1%88%D1%82%D0%B0%D1%98+%D0%B7%D0%B0+2019+%D0%B3%D0%BE%D0%B4%D0%B8%D0%BD%D0%B0+%D0%92%D0%A1%D0%A0%D0%A1%D0%9C-%D0%BA%D0%BE%D0%BD%D0%B5%D1%87%D0%B5%D0%BD.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE.Z18\\_L8CC1J41L0B520APQFKICD0CU3-dfd1b280-782d-42ae-a087-9f669e8c](http://www.vsrn.mk/wps/wcm/connect/vsrn/dfd1b280-782d-42ae-a087-9f669e8cf628/%D0%98%D0%B7%D0%B2%D0%B5%D1%88%D1%82%D0%B0%D1%98+%D0%B7%D0%B0+2019+%D0%B3%D0%BE%D0%B4%D0%B8%D0%BD%D0%B0+%D0%92%D0%A1%D0%A0%D0%A1%D0%9C-%D0%BA%D0%BE%D0%BD%D0%B5%D1%87%D0%B5%D0%BD.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE.Z18_L8CC1J41L0B520APQFKICD0CU3-dfd1b280-782d-42ae-a087-9f669e8c)  
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Analyzing the data in Table 2, we can conclude that according to the type of decisions made by the Supreme Court, most of the requests were adopted, which means that the court found a violation of the right to a trial within a reasonable time. This certainly indicates that some administrative procedures and some administrative dispute take too long and given that the parties really need this remedy, i.e., the parties need to protect themselves from the excessive length of administrative procedure and some administrative dispute. The Annual Report on the Work of the Supreme Court of the RNM from 2020 states that, "having in mind the parameters valued by the panel in deciding on a specific request for protection of the right to a trial within a reasonable time, such as the complexity of the case, duration of the procedure, referral of the parties to the proceedings and referral to the court that acted, the most common violations of the procedure for protection of the right to trial within a reasonable time which ended with the acceptance of the request have administrative cases, due to untimely or incomplete delivery of case files."<sup>24</sup> In the Annual Reports of the Supreme Court, in continuity, the main reason for exceeding the deadline of 6 months as a legal framework for resolving this type of case before the Supreme Court of the Republic of North Macedonia is the non-submission of case files to which the request refers. What is stated in the reports is that after filing the request for protection of the right to trial within a reasonable time and filing a case, the judge-rapporteur is obliged to request by letter - urgency the case file from the court before which the procedure was conducted. This is especially the case with administrative cases, where the records of the case to which the request for protection of the right to trial refers within a reasonable time, are located at the acting body. In this context, the reports state that there is a lack of a remedy by which the Supreme Court of the Republic of North Macedonia will impose itself before the lower courts for faster delivery of case files, especially in cases involving a case for protection of the right to trial within a reasonable time, is an active case, i.e., a case in progress, where the rule applies to create conditions for the proceedings in the case to continue in the phase in which it is and not to wait for the decision on the request for protection of the right to trial within a reasonable time.<sup>25</sup> What we can note from the analysis of only a few anonymized decisions on the website of the Supreme Court is that the right to a trial within a reasonable time is violated by the administrative bodies, but also by the Administrative Court. Respectively, the procedure for exercising a certain right and legal protection lasted for years.<sup>26</sup> What is evident from the analyzed decisions is that the main reasons for delaying the procedure are first, the decision by the second instance body with which the appeal is upheld, and the case is returned for retrial to the first instance body and secondly, the adoption of judgments by which the lawsuit is upheld, the decision is annulled, and the case is returned for retrial to the second instance body (the defendant body). Such constant referral of decisions from one body to another directly affects the length of the procedure and the inability of the party to exercise its right over the years. To overcome this situation, it is necessary for the bodies that decide on legal remedies to make merit decisions, to oblige the lower bodies to act upon the decision within a certain deadline and to control the execution of the adopted decisions. Other factors influencing the length of the administrative court procedure are the capacities of the court i.e., personnel, organizational, financial, etc. preconditions for the work of the courts, the system of rewarding the work of

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<sup>24</sup> Report on the work of the Supreme Court of the Republic of North Macedonia for 2020,  
<http://www.vsrn.mk/wps/wcm/connect/vsrn/a45e1912-8617-44dd-a976-9c03f31d3ff9/%D0%98%D0%B7%D0%B2%D0%B5%D1%88%D1%82%D0%B0%D1%98+%D0%B7%D0%B0+%D1%80%D0%B0%D0%B1%D0%BE%D1%82%D0%B0+%D0%BD%D0%B0+%D0%92%D0%A1%D0%A0%D0%A1%D0%9C+-+2020+%D0%B3%D0%BE%D0%B4%D0%B8%D0%BD%D0%B0+%D0%BA%D0%BE%D0%BD%D0%B5%D1%87%D0%BD%D0%B0.pdf?>

<sup>25</sup> Annual Report on the Work of the Supreme Court of the RNM for 2020, see also the decision of the Supreme Court of the PSRRU ». No.« 108 »/« 2016 »

<sup>26</sup> See: Decision of the Supreme Court "PSRRU". No. "83" / "2017", Decision of the Supreme Court, PSRRU. No. 57/2018, "PSRRU" No. "39" / "2018" (PSRRU - Cases for trial within a reasonable time - administrative area) in original IICPPY

judges, modernization of the information system in the courts, etc., which were considered "external" factors. Others relate to the conduct of the court in a particular case, and they are determined by the type of dispute, the complexity of the case, the conduct of the court and the parties, the conduct of lawyers, etc.<sup>27</sup>

#### 4. CONCLUSION

The effective exercise of the protection of the right to a trial within a reasonable time is of the utmost importance for the parties in terms of timely realization of their rights and obligations, but also in relation to the institutions because their integrity is strengthened by increasing their efficiency. On the other hand, legal certainty is achieved and trust in the institutions is strengthened. With regard to the question of whether there is a definite reasonable time within which a procedure should be completed, we conclude that a reasonable time is not defined with a precise determination of the time period in which a procedure should be completed, but the violation of the right to trial within a reasonable time determines on the basis of certain criteria such as the complexity of the case, the conduct of the parties in the proceedings, the conduct of the competent authorities in the administrative proceedings and the conduct of the court in an administrative dispute. Consequently, the violation of this right is determined by the court from case to case, i.e., for each case separately. In relation to the legal framework that regulates this issue in the RNM, we note that there are good legal solutions that specifically provide deadlines for decision-making in administrative proceedings. Of particular importance is the provision of the Law on Administrative Disputes which regulates the principle of efficiency, stating that the court will make its decision within a reasonable time, i.e., no later than nine months from the date of submission of documents or creation of conditions for deciding on the lawsuit. It remains debatable why the deadline is tied to the moment of completing the files, because the problem with the submission of files is also noted in the work reports of the Supreme Court. Therefore, it can be expected in practice that the 9-month deadline for the completion of the administrative dispute cannot be observed, so the provision will not have effective application. From the empirical analysis we find that certain procedures (administrative and administrative-judicial last even a few years), which is evident from the decisions of the Supreme Court, which decides on the request for protection of the right to trial within a reasonable time. There are two reasons for such a situation in practice, namely the untimely submission of files, the repeated passing of judgments by the Administrative Court by which the disputed act in an administrative dispute is annulled and returned for reconsideration. However, the legislator in the latest law foresaw these situations as well. Thus, firstly, in relation to the problem of non-delivery of files, the Law on Administrative Disputes provides for the possibility for the court to impose a fine for the body / person who will not submit the files within the set deadline, secondly in relation to the body's failure to act upon the decision of the Administrative Court, the Law provides for the authorization of the Administrative Court to solve the problem on the merits. Also, the problem with the submission of files was noted in the reports on the work of the Supreme Court, stating that it directly affects the deadline for deciding on the request for protection of rights within a reasonable time. Hence, we conclude that what is necessary in the future is to ensure consistent application of the provisions governing these issues, to improve communication between public authorities and the courts and to strengthen the authority of the courts. Special emphasis should be placed on empowering administrative courts and the Supreme Court to monitor the execution of their decisions.

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<sup>27</sup> Lj. Milutinović, *Suđenje u okvirima razumnog vremenskog roka*, Pravni informator, Online izdanje časopisa, str. 1., taken from Dragoljub Drašković, *The Right to a Trial within a Reasonable Time*, Matica, no. 74, summer 2018, pp.63-120, <http://www.maticacrnogorska.me/files/74/07%20dragoljub%20draskovic.pdf> (in original Dragoljub Drašković, *Pravo na suđenje u razumnom roku*, Matica, br. 74, ljeto 2018, str.63-120)

Given that the Supreme Court's handling of the request for protection of the right to a trial within a reasonable time is regulated only by a few provisions of the Law on Courts, perhaps in the future we should consider amending the Law on Courts or enacting Law on Protection of the Right to Trial within a Reasonable Time, which would regulate in a more precise and clear manner the issues related to the procedure for protection of the right to a trial within a reasonable time.

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# THE INTERDEPENDENCE BETWEEN EXPATRIATE MANAGERIAL PARADOXES, IDENTITY AND INNOVATION AND KNOWLEDGE TRANSFER PERFORMANCE

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## **ABSTRACT**

*The purpose of this study is to investigate and determine the specific mechanism of interdependence between two factors affecting expatriate managerial innovation and knowledge transfer performance: managerial identity and sustainable mediation paradox resolution. Managerial identity is operationalized through four identity profiles which represent various modalities of expatriate resistance or of openness to the ambient cultural milieu (host or home culture). The mediation paradox depicts a job – related role conflict in the form of contradictory expectations from the host culture and home culture. Grounding in the theory of social identity and the theory of reasoned action, I develop hypotheses arguing that expatriate managerial perceived mediation paradox tension varies relative to the type of expatriate managerial cultural identity. I further argue that the relation between expatriate managerial mediation paradox tension and managerial creativity, innovation and knowledge transfer have curvilinear characteristics. With this study, I contribute to the paradox and international business literatures addressing both the importance and lack of research on cross-cultural paradoxes. Specifically, I contribute to the paradox literature that priority focused exclusively on the tension caused by a single (type of) paradox as well as to the expatriate literature that lacks insights in managerial cognition, behavior and performance in paradoxical settings. I also deliver methodological contributions.*

**Keywords:** *expatriate managers, paradoxes, identity, knowledge transfer, innovation*

## **1. INTRODUCTION AND LITERATURE REVIEW**

The academic interest for the phenomenon of paradox, i.e. conflicting and interdependent forces operating simultaneously over time, has its roots in psychoanalysis. This research focused on how individuals experience and react to paradoxical tensions (Jung, 1965; Smith & Berg, 1987). However, paradox theory received the largest contributions in management research. In the past two decades, management scholars investigated the phenomenon on organizational, team and individual levels and identified various domains thereof entailing types, salience factors and outcomes. Typology enclosed learning (exploration vs. exploitation), organizing (flexibility vs. alignment), performing (conflicting objectives and stakeholders) and belonging (competing identities) paradoxes (Schad, Lewis, Raisch & Smith, 2016). Factors fostering paradoxical salience were found to be environmental plurality, scarcity and various positive or negative outcomes (Schad, Lewis, Raisch & Smith, 2016; Spektor, Ingram, Keller, Smith & Lewis 2018). Even though organizational level studies dominated management literature on paradoxes, individual level research provided interesting insights. This research focused on top and middle managers as key actors engaged in paradox management and explored their cognitive, emotional and behavioral responses to paradoxical tensions and how these affect their performance. On one hand, studies showed that paradoxes can spark anxiety, ambiguity or insecurity, driving managers to display defensive behaviors, split or suppress opposing paradoxical pressures, or avoid paradoxes, engage in conflicts and provoke organizational decline (Smith, 2014; Ahforth & Reingen, 2014).

Oppositely, studies showed that managers can embrace paradoxes, thrive and productively manage opposing alternatives, thus increasing creativity, innovation and effectiveness (Jay, 2013; Schneider, 1990; Bartunek, 1988). Paradoxically, even though paradox lies at the heart of international business research in the form of conflicting norms, expectations and demands that different countries display towards multinational organizations and global workers, it has only received partial attention. Dominating the international literature, macro-level research focused on the home-host duality, e.g. the influence of opposing institutional, cultural, social, political and other home-host environmental forces on multinational organization's strategy, entry mode, policy or structure (Doh, Rodriguez, Uhlenbruck & Eden; 2003; Spencer & Gomez, 2011). Individual-level research, on the other hand, focused mostly on expatriate adaptation, adjustment and performance in the host and explored a myriad of environmental and cognitive hindrance and facilitating factors (see Bhaskar-Shrinivas, Harrison, Shaffer, and Luk, 2005, for a review). Surprisingly, despite being central for expatriate, especially managerial role, research entailing dynamics between simultaneous, interdependent and paradoxical home-host loyalties and managerial cognition, behavior and performance was extremely scarce. A rare example is work by Osland (2000) and Osland, Bird, Mendenhall & Osland (2006) on mediation paradox, i.e. a performing paradox that concerns a job-related role conflict in terms of making the effort to respect host culture norms and get the job done by complying with the headquarters' demands, or finding a reasonable compromise to conflicting expectations. This research confirmed that expatriates do, in fact, experience mediation paradox and that the degree of cultural involvement with the other country increases their awareness thereof. However, these findings did not entail expatriate managers and in overall did not offer extensive insights in the phenomenon. Hence, we are still searching the answers to the questions of *how do expatriate managers perceive the mediation paradox. Which side will they favor in responding to such paradox and why? How will that affect their performance?* In this study, I build on contributions from management and international research to provide answers to these questions. Using theory of social identity (Tajfel & Turner, 1979) and theory of reasoned action (Fishbein & Ajzen, 1975), I focus on the interdependence between managerial mediation paradox of performing, e.g. gratifying competing home and host expectations, and paradox of belonging to home or host culture, e.g. degree of cultural involvement. I argue that belonging paradox regulates the expatriate managerial cognitive salience of performing paradox and that such interdependence affects their performance in the form of creativity, innovation and knowledge transfer. More precisely, I operationalize expatriate managerial cultural involvement, e.g. the belonging paradox tension, in terms of four identity profiles which represent various modalities of expatriate resistance or openness to the ambient cultural milieu (host or home culture). I argue that the lesser degree of cultural involvement (neutral/shared cultural identity or stronger belonging paradox tension) increases the expatriate mediation paradox tension, thus countering Osland's original work. Taking a step further, I argue that expatriate managerial mediation paradox tension increases their creativity, innovation and knowledge transfer and that this relation has curvilinear characteristics. I also argue that belonging paradox tension, i.e. expatriate cultural identity moderates that relationship. With this study, I contribute to the paradox and international business literatures by placing the concept in international, expatriate managerial context, which has rarely received attention. I further contribute to paradox literature by providing evidence on communication between different types of paradoxes and the effect thereof to managerial cognition and performance. I contribute to expatriation literature with new evidence on managerial cognition, behavior and performance in paradoxical settings. I also provide methodological contributions. In the continuation of this extended abstract, I first present my theoretical arguments leading to specific hypotheses. I then propose a methodological approach for the empirical examination and detail the contributions of the study.

## 2. THEORETICAL AND HYPOTHESES DEVELOPMENT

Expatriate managers as boundary spanners are endlessly beset by paradoxical home and host loyalties and demands. They may have to follow directives from headquarters that conflict with the local values and/or their values (Shetty, 1971). Yet, the parent company sees expatriates as a representative of a local company and may even blame them for local resistance to their directives (Torbiorn, 1982). This brings complexity in expatriates' role as they have to gratify the host expectations and often demands to the parent company in the home country and vice versa. This means that choices must be made which side to favour in given situation, which is a source of paradoxical tension for the expatriate. While all expatriates face the same paradoxical situation not all will have the same reaction. Prior research (Osland et al., 2006) argued that cultural involvement with the home or host culture predicts expatriates' experience of mediation paradox tension. According to these authors, the greater the degree of cultural involvement is, the more intense the paradox experience should be, as the more culturally involved an expatriate is, the more clearly can s/he experience the "other" culture's pressures and expectations. However, this research neglected the fact that cultural involvement can also involve paradoxical tension for expatriates and has omitted performance dimension of expatriate functioning. In this study, I include these key elements and counter the existing arguments. Operationalizing expatriate belonging paradox or the degree of expatriate cultural involvement, I turn to the expatriate cultural identity. Different profiles of expatriate identity on the continuum between home and host affiliated indicate the extent to which an expatriate identifies him/herself or is embedded/involved in a given culture, hence the strength of belonging paradox tension. Certain individuals will choose radically falling back to their culture of origin, others will opt for the almost total permeability of the cultural environment of the host country and some will develop a shared home-host identity (Chanalat, Davel & Dupuis, 2013). Expatriates can, therefore, be grouped in one of the profiles of identity conversion ranging from home culture affiliated to host culture affiliated as proposed by Fernandez, Mutabazi and Pierre (2006) and presented in Table 1. The "transnationals" have strong cosmopolitan values and thus develop "shared loyalty" to the places and societies that they have experienced. The "opportunists" are concerned with their career development and they adapt to differing cultural settings accordingly. "Conservatives" and "converted" are both considered identity profiles with high degree of cultural embeddedness in the home (conservatives) and host (converted) cultures. Therefore, the tension of belonging paradox should be the strongest for transnationals who nurture shared home-host identity.

IDENTITY PROFILE	AFFILIATION	IDENTITY SPECIFICS
<b>Conservative</b>	Home culture	High home culture relation density (family, friends) Protective retrenchment in favor of the home culture Negative attitude towards acculturation
<b>Converted</b>	Host culture	Positive attitude towards acculturation Seeks membership in and identifies with the host culture
<b>Opportunist</b>	Self	Career centered Risk aversion Improvisation in decision making
<b>Transnational</b>	Neutral	Shared loyalty (home/host culture) Cosmopolitan spirit Vast international experience Rich (culturally adequate) behavior repertoire

*Table 1: Expatriate identity profiles*  
 (Source: adapted from Fernandez, Mutabazi & Pierre (2006))

According to the theory of social identity (Tajfel & Turner, 1979) members of an in-group will seek to find negative aspects of an out-group and will display preferential treatment to those that are perceived as members of the in-group. Therefore, they will identify themselves with an in-group (culture) and will perceive the mediation paradox from the single culture (in-group) standpoint or they will not perceive a paradox but an obtrusion of the "their" culture. On the other hand, the more culturally neutral (less culturally involved, stronger belonging paradox tension) an expatriate is, s/he will perceive the differences between the opposing cultures within mediation paradox more clearly, based on their ability to grasp the paradoxical situation from both home/host culture standpoints. Their inclination to find a reasonable compromise to conflicting expectations should, thus, increase the paradoxical tension. In other words and opposite to Osland's (et al., 2006) original work, I argue that the more culturally neutral expatriate identity is, e.g. the stronger the expatriate managerial belonging paradox tension, the greater the mediation paradox tension should be. Based on the above, I put forth my first set of hypotheses:

- **H1:** *Expatriate managerial mediation paradox tension varies relative to the degree of belonging paradox tension, i.e. the type of expatriate managerial cultural identity.*
- **H2:** *The stronger the belonging paradox tension, i.e. the more culturally neutral expatriate managerial cultural identity, the greater the mediation paradox tension.*

Multicultural settings bring up more alternatives to innovate as "cultural friction" between opposing cultures within cultural contact fosters creativity and produces new knowledge (Frentz & Lambert, 2012; Eisenhardt, 1989). At the same time, expatriate managers need access to expertise from different cultural sources to resolve culturally contingent types of problems such as mediation paradox. Therefore, operating in culturally diverse settings increases their opportunities to identify and exploit valuable new knowledge. Diversity of knowledge in cross-cultural settings increases the depth, breadth, and speed of expatriate learning, leading to greater creativity and innovation through the effort of adapting to a new culture (Maddux & Gallinski, 2009). In addition, expatriates serve as an absorptive factor of the firm as they identify, understand, integrate and apply knowledge regarding specifics and values from the cultures involved in mediation paradox in order to gratify their demands and expectations. They transform into mechanisms of gathering and interpreting new knowledge as well as exploiting it in organizational or market arena in the form of innovations (Kane, Argote, & Levin, 2005). Expatriates, thus, derive innovation from knowledge about parent country as well as local attributes. Consequentially, the greater expatriate managerial mediation paradox tension the more they engage in knowledge search, acquisition, exploitation and dissemination to comply with conflicting pressures. Such behavior ultimately facilitates creativity and innovation and knowledge transfer performance. Hence, I put forth my third hypothesis:

- **H3:** *Expatriate managerial mediation paradox tension is positively related to managerial creativity, innovation and knowledge transfer.*

The theory of reasoned action (Fishbein & Ajzen, 1975) implies that if people evaluate the suggested behavior as positive, and if they think their significant others (in-group/culture) want them to perform the behavior, this results in higher intention and they are more likely to do so. Accordingly, the more expatriates identify themselves with a certain (home/host) culture they will, likely, behave in favor to the culture with which they have identified with. Hence, I argue that culturally more neutral expatriates or those with stronger belonging paradox tension will strive to equally and simultaneously comply with opposing expectations associated with mediation paradox. Simultaneous and equal engagement towards gratification of demands and expectations of both parties involved in mediation paradox, without separation or submission of their interests presumes productive management of opposing expectations and demands of

cultures involved in mediation paradox. This enhances expatriate creativity and innovation as countering diverse parties fosters creativity (Frentz & Lambert, 2012). On the other hand, culturally (home/host) biased or expatriates with lower belonging paradox tension will hamper creative/innovative and knowledge transfer performance as they focus on one side, not taking full advantage of the available knowledge and learning, assimilation, integration and dissemination of that knowledge. Hence, my next set of hypotheses:

- **H4:** *the strength of the relation between expatriate managerial mediation paradox tension and managerial creativity, innovation and knowledge transfer varies relative to the strength of belonging paradox tension, i.e. type of expatriate managerial cultural identity.*
- **H5:** *the stronger belonging paradox tension, i.e. the more culturally neutral expatriate managerial cultural identity, the stronger the relation between managerial mediation paradox tension and their creativity, innovation and knowledge transfer.*

The hypothesized relationships are illustrated in Figure 1;

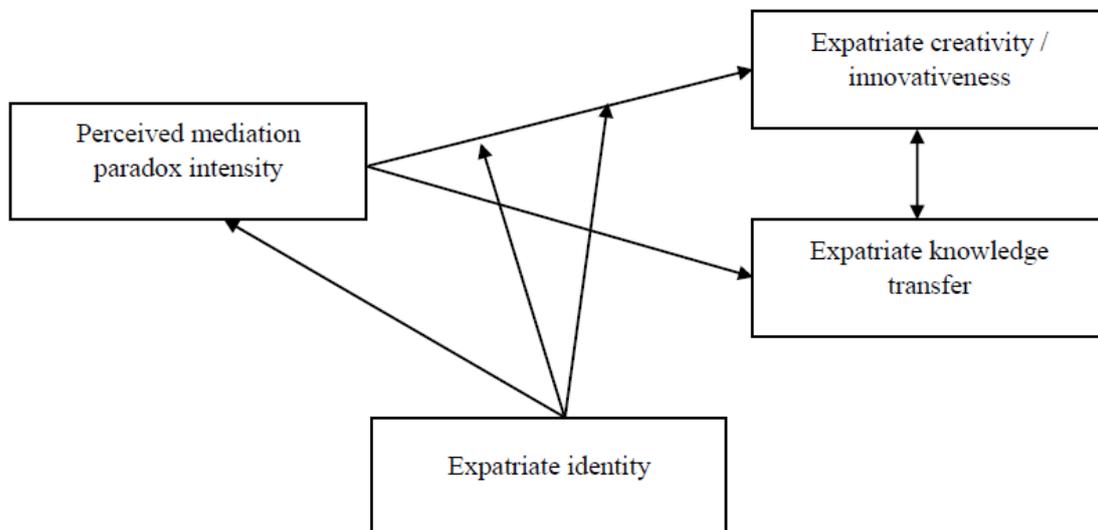


Figure 1: The research model

Finally, I propose a curvilinear relationship between mediation paradox tension and expatriate creativity/innovativeness and knowledge transfer. This means that the mediation paradox tension has a positive impact on expatriate creativity / innovation and knowledge transfer to a point after which, the impact evolves into negative. This is caused by overstressing of expatriates, which makes them unable to gratify conflicting home/host demands at a certain point. Also, they may become more experienced and able to assess the primary needs of gratification according to the situation at hand. Based on their assessment, they will concentrate on one side/culture, thus, decreasing the need for creativity / innovativeness and knowledge transfer effectiveness. Hence, my final hypothesis:

- **H6:** *The relation between expatriate managerial mediation paradox tension and managerial creativity, innovation and knowledge transfer has curvilinear characteristics.*

This is illustrated in Figure 2;

Figure following on the next page

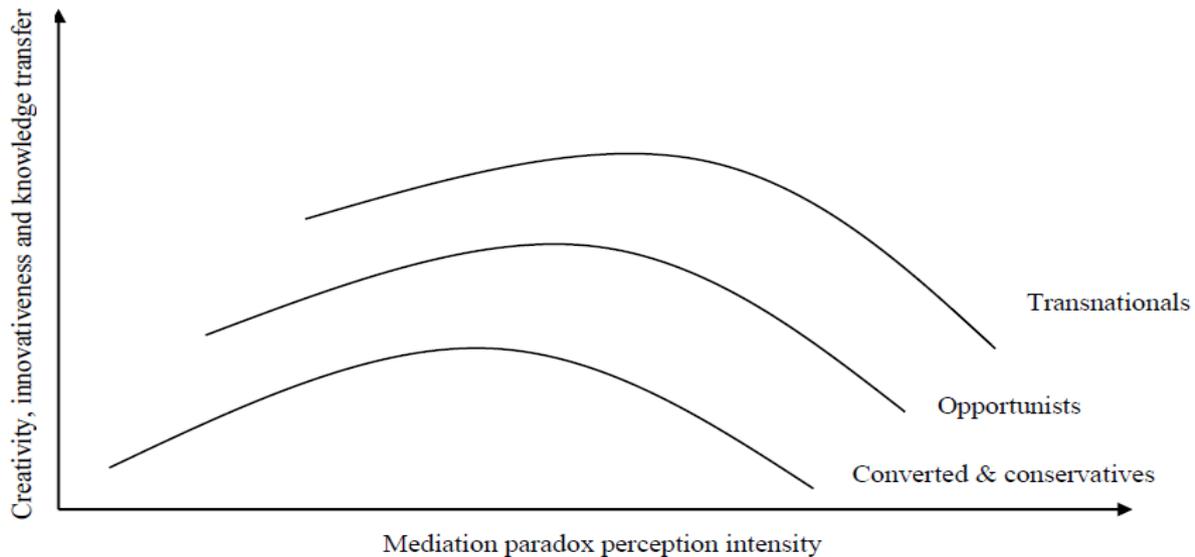


Figure 2: Relationship between expatriate mediation paradox intensity perception, identity and performance

### 3. METHODOLOGY

#### 3.1. Sample

The sample will consist of expatriate managers, i.e. foreign nationals working in host countries on executive decision-making positions. Specifically, I aim to entail corporate assignees, defined as those temporarily relocated by their organization, usually for several years, to complete a specific task or accomplish an organizational goal (Biemann & Andresen, 2010), and self-initiated expatriates defined as individuals who relocate to a foreign country on their own initiative, to perform work within a definite period of time (Cerdine & Selmer, 2013). I will omit academic expatriates, diplomats, immigrants and short-term assignees because of their different motives for relocating and the different durations of assignments. These types of expatriates have unique experiences (Shaffer, Kraimer, Chen, & Bolino, 2012) and I am aiming to avoid capturing the idiosyncrasies of just one type. I aim to include between 300 and 500 examinees in the sample, striving for diversity across demographic features.

#### 3.2. Data collection and variable operationalization

Data will be collected via a) mailed paper surveys to the potential participants and organizations to seek participation and distribution within their organization, b) manual distribution and retrieval of paper surveys by volunteer students, faculty members, and researchers, and c) online surveys (e.g., Google Forms and Qualtrics surveys). The survey will be in English language. New scales for managerial mediation and belonging (cultural identity) paradox tension will be developed. I will adopt and, with respect to the research context, adapt measurements for expatriate creativity, innovativeness and knowledge transfer to the research specifics as those are substantially developed and tested in the existing research literature. All scales will be based on examinee self-assessment. Cultural identity scales will position the examinees on one of the identity profiles, while belonging and mediation paradox scales will measure degree of managerial psychological tension caused by the phenomenon. Scales quantifying expatriate innovation, knowledge transfer will focus on inflow and outflow of tacit/explicit knowledge from/to subsidiary, channels used and types (product, process, organizational, market) of innovations. The scales will be tested for internal reliability via Confirmatory Factor Analysis employing Structural Equation Modeling, as well as standard Cronbach Alpha analyses.

The individual level control variables entailing expatriate managerial demographics, cultural and emotional intelligence, and contextual level control variables of home/host culture cultural distance will be included in the analyses.

### 3.3. Testing of hypotheses

A positivist methodological approach employing a representative survey instrument with the stated scales with a five-anchor Likert scale will be adopted. Data obtained will be subjected to standard descriptive and inferential parametric statistical tests to facilitate making inferences from the analyses. This approach will allow the exploration of the phenomenon in its entirety, discovering and uncovering various dynamics thereof and will facilitate the rigor and robustness of the research.

## 4. CONTRIBUTIONS

There are multiple contributions to this research. I simultaneously contribute to paradox and international business literatures by placing the phenomenon in international, e.g. multicultural context. Since the concept of paradox has mainly been researched in management area, and has rarely received attention in international research, this study articulates and addresses both the importance and lack of research on cross-cultural paradoxes. By showing the interdependence between, and not only within different paradoxes, and the effect of this relation to individual performance, I contribute to the paradox literature that priority focused exclusively on the tension caused by a single (type of) paradox. I contribute to expatriation literature that surprisingly suffers almost complete loss of evidence in managerial cognition, behavior and performance in paradoxical settings. I also address these relations in the long term by showing how managerial performance gradually declines due to decreased ability of balancing the paradoxical pressures. Finally, I deliver methodological contributions, by developing new scales for managerial paradoxes tension measurement. These scales will also help researchers in their future explorations of various expatriate and managerial phenomena.

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