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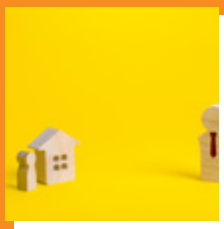
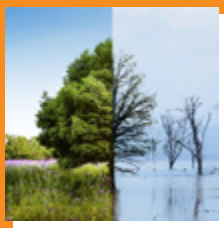
Entrepreneurial Economy
Volume XIX



Podgorica, September 2022

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Publisher: University of Donja Gorica

CIP - Каталогизација у публикацији
Национална библиотека Црне Горе, Цетиње

ISSN 2661-2704 = Entrepreneurial economy (Podgorica. Online)
COBISS.CG-ID 23449604

Content

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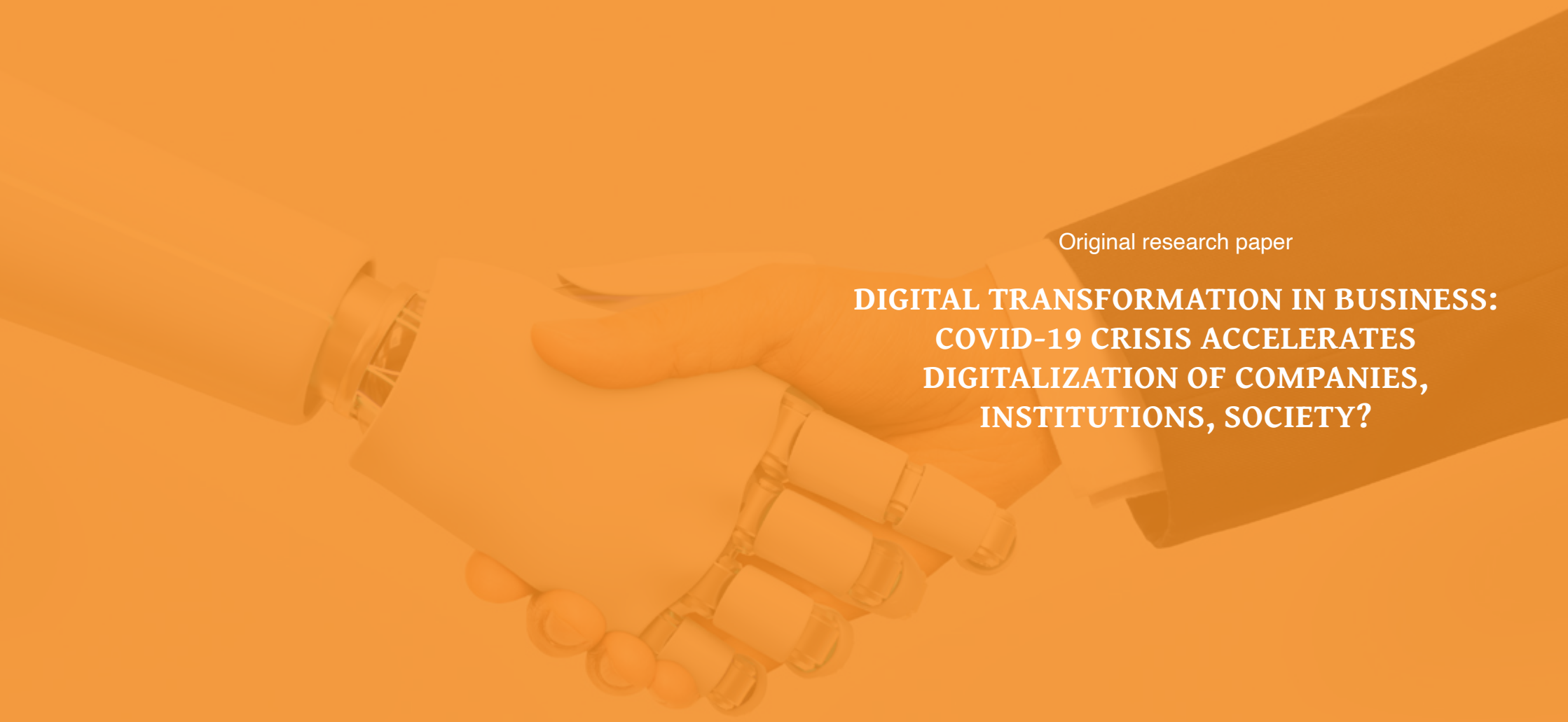

Original research paper

DIGITAL TRANSFORMATION IN BUSINESS: COVID-19 CRISIS ACCELERATES DIGITALIZATION OF COMPANIES, INSTITUTIONS, SOCIETY?

DIGITAL TRANSFORMATION IN BUSINESS: COVID-19 CRISIS ACCELERATES DIGITALIZATION OF COMPANIES, INSTITUTIONS, SOCIETY?

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ABSTRACT:

The Covid-19 pandemic has accelerated the path to digital transformation, as companies are still facing office closures, limited movement, and supply disruptions after a year. Companies of all sizes currently have in mind a view of digital transformation on their business radar, only that some companies are still "procrastinating", believing that current business is not so urgent as to react in the right way. Digital realizes orders and satisfies needs, and man is now only there to verify existing processes (Mićunović et al., 2021).

Companies need to keep in mind that digital transformation is necessary, regardless of the current success of a particular business model. To achieve a capable strong business model, it is necessary to reduce costs and thus prices of products and services, increase the value of services and the number of benefits for the customer, increase the value of products and services in the global market, and constantly strive for a proactive instead of reactive approach.

The traditional ways of working of employees and their survival in the future are in great question, especially because during the Covid-19 pandemic, employees were given more freedom of action and a modified way of working, which now gives them more efficient

procedures and more satisfied clients. On the other hand, an aggravating circumstance is the lack of motivation for the work of employees, since they are not able to agilely manage activities together with their team, socialize and make friends. Therefore, one of the biggest challenges for companies is moving the value and benefits of physical cooperation and interaction during work to the digital and remote context in further actions. We cannot expect the digital transformation of a company without an overall digitalization strategy that will accelerate the development of the digital economy and knowledge society, and enable achievements through economic growth and employment, higher GDP and lower public debt, budget filling, and excellence of all segments of society, greater competitiveness, and national prosperity. The only way for a company to adapt to constant changes and radical disruptions of reality is to accelerate and act at the current pace.

Keywords: Covid-19, digital transformation, innovative business models, smart leaders, soft skills

1. INTRODUCTION

The business of the past year is the best proof that we are a part of the agile global community, whose changes are managed by people with the help of technology, soft skills, and smart leadership, capable of leveraging digital technologies and guiding the company towards long-term success, or short-term failure followed by lessons learned and recovery. Leaders are responsible for the success of the team, and the key goal of the strategic policy is to foster curiosity even after the Covid-19 crisis, a research spirit that leads to the fight against invisible influence.

Before the Covid-19 pandemic, studies were based on how mobile, social, and web trends shape new consumer needs and behaviors, creating Generation C - Connected, which has been at the center of innovation for the past decade. Consumers who have become digital are now becoming impatient about meeting requirements, and are much more efficient in making decisions, researching markets, defining needs, and comparing themselves to other digital platforms, and only then they do decide which company they are interested in (Solis, 2020). The accelerated development and use of digital technologies have forced companies to adapt and transform their business to digital as soon as possible.

Digital transformation often involves certain challenges that a company has to face, and one of the main ones is that the application of digital technologies significantly reduces costs by replacing human business skills with robots and other virtual agents that optimize the costs of day-to-day operations in many sectors in companies, specifically through the use of artificial intelligence as well as blockchain technologies (Verhoefa et al., 2020).

Digital is an adjective created by the use of technology in resources that make information-rich, connected, and pervasive. Digital changes everything - organization becomes fluid, teams become innovative machines, value chain becomes value network, consumers now become partners, suppliers and competitors, business systems become platforms, and cultures become changes (Kaufman & Srića, 2020). If we do not approach digital transformation comprehensively but partially, the chances are high that we may not be successful (Mićunović et al., 2021).

Another challenge relates to the fact that in line with the development of digital technologies, the situation in the global market is changing significantly, and now competition and market are in favor of small and medium-sized digital companies. For example, a decade ago, according to the S&P 500 Index, there was only one information technology (IT) company among the five largest in the world (Exxon, GE, Microsoft, Gazprom, and Citigroup), while in May 2018, according to S&P's, the five largest companies in the world were IT companies (Apple, Alphabet, Microsoft, Amazon, and Facebook). The third challenge for companies due to digital transformation is the change of consumer habits - a response to the current digital revolution (Verhoefa et al., 2020).

In particular, nowadays, consumers are increasingly turning to online sales platforms and services where they get the opportunity to become prosumers instead of consumers - they take part in creating the offer of companies - products they want to use. Due to the digital revolution, consumers became much better connected, informed, empowered, and active, which gives them opportunities to participate in the co-creation of desired products, define the manner and dynamics of the distribution of products and services, and provide quality information to consumers about current products. Companies are currently forced to keep their business alive, as well as preserve the health of their employees, which is very challenging given that the two most important target groups - employees and customers, are waiting for significant changes and adjustments to new trends in how business is done such as work from home, agile cooperation with customers, digitalized business processes that will increase efficiency in the cooperation of institutions and the state with companies (Lemmens & Noben, 2020). Only such an approach can guide us to a globally competitive market and customers.

If we do not approach the transformation comprehensively, but partially, there are great chances for us to finish unsuccessfully. That is why, in addition to the purpose and significance, the whole society must show readiness for change. To prepare a reaction to current problems and challenges it is necessary to, first of all, spot them, precisely **it is necessary to research the challenges of development and the impact of digitalization on businesses in Montenegro**.

COVID-19 pandemics only accelerated the need for digitalization, that is why **the main goal is to target the main gaps in education, everyday life, and work, that prevent prompt decision making, implement change and respond effectively** to the challenges of the global and invisible market (Kaufman & Srića, 2020). A scientific research project called **"DIGagCOV: Support to SMEs in covid digitalization and digital payment"** was implemented by the research team of the University of Donja Gorica with the support of the Ministry of Science of Montenegro.

2. LITERATURE OVERVIEW

We mustn't look at the needs for the use of digital technology in the same way in every company, regardless of its size, activity, number of employees, market, and other important parameters. In this regard, it is important before any reforms and investment actions in the company, to identify three main phases of digital transformation, and those are informatization, digitalization, and digital transformation (Popov, 2017).

Informatization is the process of converting analog information into a digital format, and this process can be reproduced in the company through digital versions of analog or physical things such as documents, photographs, recordings, and sounds. Precisely that, the translation of the analog signal into digital, which can be used in computer systems for some of the everyday processes that require high costs and staffing in the company, and only some of them are scanning and archiving documentation, material exchange, data access, and digital research.

Digitalization is a process related to the application of digital technologies that replace and improve existing processes in companies. More precisely, digitalization is the use of existing technologies and information to improve or replace business processes, make a profit, and create a user environment for digital business in which information plays a central role. The simplest example is using a google drive to store and share documents instead of a paper-filled drawer, then creating online or mobile communication channels that allow consumers to get in touch with companies, using one of the internal business communication or project management platforms. Digitalization does not always refer to radical changes that will bring new cash flow to companies or change the way they do business, sometimes it is enough to use existing resources to save users time and facilitate access to their services.

Digital transformation is the most complex process of applying digital technologies, which integrates digital technologies in all areas of business, and which results in fundamental changes in business and delivering value to customers. Thus, the use of digital technologies radically transforms the business model, generates new revenue streams, and completely changes business processes. In contrast to informatization and digitalization, where the focus is mainly on the improvement of existing processes and models, digital transformation introduces a completely new business model in a company, implementing new business logic and creating new value for users of products and services (Spremić, 2016). Digital transformation encompasses a wider spectrum of changes related to the way the company operates throughout the company and addresses all the important organizational processes and tasks that are performed daily.

Perhaps the most important aspect of digital transformation is **cultural change**, which requires organizations to constantly review the status quo, often experiment, and become accustomed to failure as an integral part of the company's path to success. This process includes addressing leadership challenges, thinking differently, and fostering innovation and new business models using technology, so the digital transformation is much broader than digital technologies (Verhoefa et al., 2020). Digital transformation of a business also means a **change in the thinking of employees** and an orientation towards constant change. Examples in practice unequivocally show that these radical changes **most often come from startups** that change entire industries with the technology, which requires large corporations to be agile in every way and adopt these technologies to make them work in their best and most cost-effective way, not to their detriment.

There is a large number of examples of how the digital transformation has made globally successful and competitive companies. For example, **Uber** started as a startup that used various technologies to enable people to use their vehicles to transport those who need driving and who contact them through applications, and the sharing economy has been significantly increased with an intermediary

application that puts the user first and offers his service of connecting with people who normally drive their cars. The emergence of this startup company has resulted in the collapse of taxi services around the world, more precisely a complete change in the business of this industry. Another example is the use of drones in agriculture which have radically changed the way an agricultural organization operates and makes a profit, thanks to drones that began to be used for commercial purposes and one of the applications found in agriculture, thanks to IoT technology (Popov, 2017).

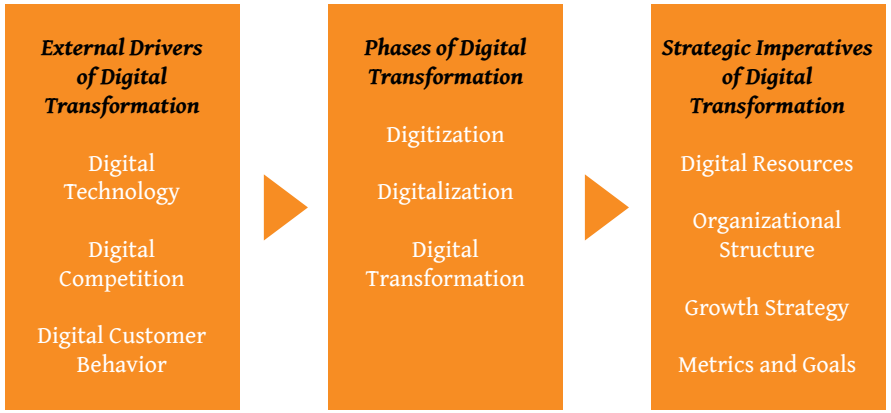
When it comes to strategic factors of digital transformation, this primarily refers to digital resources that will enable substantial changes in the company, increase efficiency and enable positive business results and expected profit as a return on investment. First of all, the following factors have been identified (Verhoefa et al., 2020): 1) **digital assets** that are necessary for companies and which include data storage, information and communication infrastructure, as well as the application of technologies that will enable AI, Machine learning, IoT, robotics in companies. It is data and technology that make up digital assets, which enable the creation of user value. In addition to digital assets, 2) **digital agility** is very important - the ability to explore and feel the market opportunities that digital technologies provide to companies. That is why the company needs to be flexible and meet three key conditions: to enable the transition to modern organizational roles, to respond to changes in consumer habits and the application of new technologies, and to respond to competition by reducing barriers to entry.

The next key resource of digital transformation is 3) **digital networking capability**, which refers to the ability to connect users, to meet their common needs through digital technologies, which also allows users to participate in creating value and thus contribute to creating a network of digitally connected companies. According to the results of the study, 75% of company directors state that competitive advantage is not achieved internally, but precisely through the strength of strategic partners and the business ecosystem in which they choose to work (Accenture, 2017). Companies that are digitally connected give customers the opportunity to participate on digital platforms in the process of co-creating products and the company's offer, by generating their content and adapting the product to their own needs. Thanks to this model, customers become **ambassadors of the company's brand** and users of their social networks. That is why the success of the company's digital transformation depends on the ability to recognize, select, connect and establish a heterogeneous network of stakeholders (customers, partners, suppliers) (Verhoefa et al., 2020).
Another very important strategic factor of digital transformation is 4) **the ability of big data analytics**, which refers to the company's ability to research and apply big data for decision-making model which is crucial for business success, especially given that the functionality of digital technologies in it depends entirely on digital data. Depending on the breadth of availability and ease of data collection, companies choose to develop the ability to analyze and use big data. Thus, a research study for company directors found that as many as 79% of them believe that making key decisions and strategies in the company depends on the quality and availability of data, although most have not yet invested knowledge and money in technologies that verify the data (Accenture, 2017).

Also, it is interesting that employees with strong digital and analytical skills are required to create value using big data, both for customers and for the company itself. To achieve this, companies must have big data teams that will deal with analytics, management, data visualization, and developing business skills based on them. It should be noted that digital giants such as Amazon and Booking.com are continuously using data analytics as a system to research needs and prepare a new offer that will align pricing policy with expected customer needs, and this requires training to continually improve skills (Accenture, 2017).

Digital transformation and the use of digital technologies aim not only to improve internal operations but also to expand existing internal dimensions, win customers and establish a network with external partners, improve services, integrate processes, and access to the disruptive market that fundamentally changes the market and existing activities.

Figure No. 1: Flow of digital transformation models, source: (Verhoefa et al., 2020).



Digital transformation in companies can be planned and prepared thanks to numerous case studies and examples of successful companies from practice, with an approach that identifies seven key dimensions of digital transformation: **strategy, people, organization, consumers, ecosystem, technology, and innovation** (Ivančić et al., 2019):

1. **Strategy** - sharing a shared digital vision is an important factor for a successful digital transformation. Each company develops a strategy according to its needs, as well as a plan for how the processes of digital transformation will be realized. In the strategic approach, two steps are of great importance, and those are the definition of the Chief Digital Officer (CDO) who will lead the digital transformation and the support body for digital project management.

2. People - To develop a digital culture and gain a competitive advantage, organizations must engage employees with digital skills and foster a culture of sharing knowledge and information in the workplace. These are mostly younger employees who adapt more quickly to changes and enable internal education through the transfer of knowledge to other employees in the company, which, in addition to the individual, also makes a significant team contribution. Thanks to its employees, the company is expanding its network of employees and introducing new activities.

3. Organization – the digital transformation cannot be carried out by itself, nor can digital projects be managed separately in one part of the company, because it is necessary to include all employees in the company who will accept digital technologies, all to achieve a purpose or develop new initiatives, which in both cases requires continuous training and education, both internally among employees and external, within which existing procedures will be adapted to numerous international standards and examples of successful practices.

4. Consumers - ensuring the quality of products that the company wants to position itself in the market, together with researching the needs of the market and customers, is crucial to meet the needs of users in the short term. Therefore, more and more often, by applying digital solutions, end-to-end market research is realized, to examine the needs and desires of users, and based on them create modern digital solutions that will be simple and easily accessible, and which will offer products and higher quality services, new value.

5. Ecosystem - the main goal of digital business transformation is to involve customers and clients in the company's processes, often through a digital platform, thus creating a business atmosphere in which customers are now partners who participate in creating the desired products. The greater need for knowledge, caused by the digitalization of the process, requires a significant acceleration of cooperation with partners, B2B clients, and public and government organizations in co-creating value. The cooperation of the company with academic institutions is also important, so that young people can get acquainted with digital skills in time, and thus prepare for companies.

6. Technology - when it comes to the use of technologies in companies, it is possible to classify them into two groups, namely primary (mobile, social, cloud, big data, IoT) and secondary (3D printing, AR, VR, AI, drones and robotics, deep learning algorithm). It is up to the companies to decide which of the technologies is needed, depending on the way the business functions, the delivery of products and services, the communication of employees, and others. One of the technologies is ERP systems, which support activities.

7. Innovation - Innovation generation is empowered by management in companies, which has the task of transferring quality ideas from employees to directors and supervisors to decision-making and potential implementation. It is very important for the digital transformation of the business, that the company's management encourages networking and exchange of ideas because otherwise, employees are afraid that their idea will get lost or misused in the hierarchy. Quality ideas and innovative proposals in the company are obtained mainly from younger employees with a proactive approach and mindset, and therefore it is necessary to recognize these young people in time and thus invest in the development of their abilities, knowledge, and skills, and form a promising team to work on research and elaboration of new ideas. The goal is not to recognize the best idea, but to introduce a culture of constant research and search for gaps and challenges.

Wayne Kurtzman, research director at IDC, states: ***"We are stuck with technology when what we want is just stuff that works"***, claims that the new methods of work will enable us to better organize time, hold meetings in different locations around the world, and integrate private and business commitments that we previously could not to such an extent: ***"Bringing the best-of-breeds together in different areas can create a synergy that works across many levels to give you scalability."*** Also, thanks to integrated technology solutions, employees will be able to manage their

accounts much more easily, without thinking about the security of their accounts on these business devices (Johnson, 2020). People interpret the current changes differently, feel and make decisions that are mostly based on the stress, feelings, and consequences of the Covid-19 pandemic. McKinsey estimates the Covid-19 pandemic brought acceleration, ***boosting 10 years of the U.S. economy in just 90 days of a pandemic***. It's not just about companies that have to keep up with investments in digital transformation, now the emphasis is on how to win the attention and loyalty of consumers who, according to research, need 66 days to change their needs, behavior, and habits. McKinsey also reveals that 75% of consumers search different stores, websites, or periods during the crisis, of which 60% expect the integration of new brands and stores in their lives after a pandemic, as they will always attract consumers digitally after opening. In the age of the Covid-19 pandemic, **consumers value health and safety much more, greater choices, flexibility and control, saved time,** and the general consequences that have led to digital behavior and routines (Solis, 2020).

One of the innovative forms of running a company's business is the introduction of innovative competitions in the company, which train employees who acquire new knowledge and skills, and are given the task to explore new ideas and identify gaps that need to be filled with innovation. These competitions are a great opportunity for employees to get to know each other, compete and create new proposals as a team. It is this **business atmosphere** for work that enables the creation of a digital strategy, which contains a plan for the implementation of innovations and reforms in the company. Also, significant support for the preparation of a digital transformation strategy can be provided by reliable literature that provides a theoretical overview of digitalization (Ivančić et al., 2019).

Companies must also strive to maximize the **potential for monetization** of the data at their disposal because it is this business analytics that enables employees to recognize the real needs of existing and potential customers. Unfortunately, companies now do not use large amounts of data to research consumer needs and market research, so digital platforms are very important that provide new ways to use and analyze data, which customers leave during daily transactions, and on which we can track their needs.

The digital transformation will develop and apply many technologies in 2021 (Eriksen, 2020): **5G, Blockchain, Cybersecurity, Environmental technology, ERP, Fintech, Online, and XaaS**. No one can predict exactly where the 2020 crisis will take us. The last year since the outbreak of the Covid-19 virus pandemic has caused more digital transformation than in the last decade, and what is certainly most characteristic is 24/7 connectivity and much more efficient business activities, which in turn causes a decrease in travel, socializing, social contact that is necessary for people to function normally. In the coming period, the focus is on AI and data analytics, followed by "top ten" predictions for 2021 (Newman, 2020):

- ***5G will finally become mainstream***
- ***Customer Data Platforms (CDP)***
- ***Hybrid cloud has defined a winning enterprise architecture***
- ***Cybersecurity is disappearing***
- ***Privacy and confidential computing are gaining momentum in the market***
- ***Technology that disrupts the industry, and reshapes trade***
- ***Work from home***
- ***Artificial Intelligence has been democratized on a scale***
- ***Folding devices are interesting again***
- ***Quantum computing becomes mainstream in the future***

The coronavirus pandemic has significantly changed the trajectory and speed of digital transformation, confronting organizations with a **new focus, decision, and investment in technology solutions**. Probably, blockchain technologies and other digital solutions can be added to all these trends, all with the aim of digital transformation to provide safer, more efficient, and safer businesses, healthy employees, and the community (Newman, 2020).

For the needs of successful digital transformation in companies, it is necessary to hire the **Chief Digital Officer - CDO**, which represents the connection between the business units in the company and the IT sector, which are in charge of project development and implementation. This development is defined by operational steps that enable the processes of creating digital insurance policies, simplification of trade procedures, improvement of payment systems, daily analysis of consumer visits and habits, as well as the development of behavioral analytics through consumer questionnaires and other digital marketing research (Ivančić et al., 2019).

The CDO position in the company has the task of monitoring the quality of products and services and comparing it with the competition, then efficiency and production capacity, because these are key data for investors that instill confidence and security in the company, and market. These parameters are very important when generating

and applying innovations in business, so companies must work on developing a digital strategy plan, in cooperation with universities and government institutions, successfully digitally transformed companies, and other organizations.

In addition to technology, digital transformation refers to organizational changes induced by digital technologies, all to accelerate innovation and disruption of existing business models and services. Various digital technologies such **as mobile technologies, robotics, cloud computing, data analytics, sensors - IoT** are represented on the market today, to collect information from physical products, disseminate and process it in a short time with the help of digital technologies, store them on the cloud, and eventually analyze them using big data and advanced analytics. As discussed in (Spremić et al., 2020), the main goal of using the mentioned technologies is the integration of products, services, and processes within the new business model, which is very simple, affordable, and easily accessible to users.

However, it is precisely these benefits that create challenges for their authors, due to the possibility that identical or similar digital technologies can very easily emerge that become **competitors**, but can never offer a sustainable competitive advantage. For competitiveness in the digital economy, preference is given to companies that simultaneously use several different digital technologies, compared to companies that opt for one (Ross, 2016). A common attitude towards Nylén and Holmström (2015) and Yoo et. al (2012), is that digital technologies, regardless of the way and activities of use, have several common characteristics and they are **flexibility and simplicity** (Tesla, Netflix), **fluidity** (Apple, Airbnb), **larger capacities**.

For a company to be able to generate innovations, it is necessary to establish quality management of existing initiatives, which will manage the innovation process through several important phases (Foss & Saebi, 2018): **generating ideas, collecting and managing ideas, selecting ideas and finally implementing innovations.** Changes that occur in the business model as a result of the implementation of innovations can be ranked as disruptive changes in the company that brings results, and also business models can be innovated by applying a scale of operational and gradual optimizations, all the way to radical changes that disruptively affect the organization.

Digital business models enable digital technologies to provide new services and services to customers and thus create added value for the company. This added value is achieved differently in companies depending on the company's activities, but regardless of whether it is a production or service business, companies usually integrate new services through a model of digital platforms, where the user gets all the necessary information, networks with other actors and thus taking part in creating the company's offer (Ibarra et al., 2018).

According to Weill (2011), the digital business model contains three separate components: **good quality content, a finely tuned user experience, and a digital platform**, as media that integrates the previous two internal resources with new content provided in an external environment. Digital platforms can be divided according to their strategic role: digital platforms that promote physical products, digital platforms that introduce new services, digital platforms that improve existing services, and digital platforms that introduce new services produced on the market, more precisely digitally born companies. It is through digital platforms that the company uses various digital technologies and thus innovates the business model, offering innovative services and processes to all actors of a business ecosystem (B2C, B2B, B2G segments), while including providers, partners, and customers.

Perhaps the key factor of successful digital transformation is **quality human capital**, the ability to use the changes to create a new organizational culture (Spremić et al., 2020). To find quality employees with universal skills, company management must strive to engage as many different generations of employees as possible, to find knowledge, experience, ability, and network in one team.

Figure No. 2: Model of platform innovation and integration through case studies, source (Spremić, 2020)

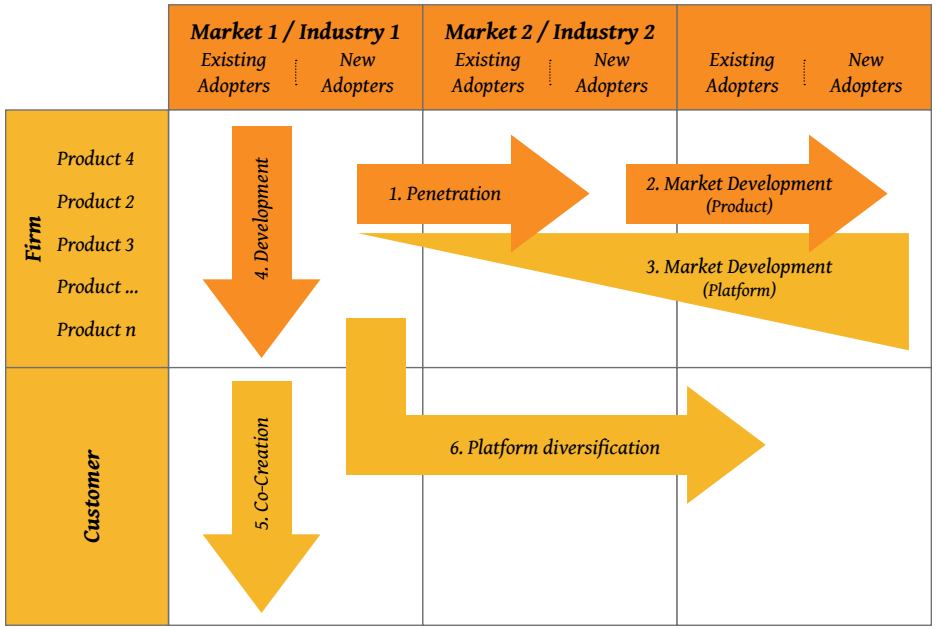
	Company A	Company B
Model Innovations Induced by the Ecosystem (Value creation)		
Clients/users induce innovations and digital business models introduction	*• Utilizing anonymized mobile users' data for changing the opening hours of retail shops • IoT infrastructure and support*	*• Optimization and digitalization of the process from design to production • Quality Assurance and Quality Control digitalization*
Collaboration with universities and educational institutions is important	*• Digitalization of student contracts • Students as a source for idea generation*	*• Experts' education. Knowledge source of technological trends and innovations • Aligning the university programs with industry needs*
Integration of Digital Platform with the Ecosystem (Value Capture)		
A digital platform creates benefits for the ecosystem actors	*• IoT infrastructure • Utilizing anonymized mobile users' data for optimizing partners' business • TO GO application*	*• Automized procurement process • Product Lifecycle Management software*
Digital platform functionalities must be aligned with clients'/ users' needs	*• TO GO application • Social network vs. retail shops*	*• Inclusion of clients in the production process*

In addition to the digital resources necessary to achieve transformation, a flexible organizational structure is needed to achieve the organizational changes necessary for digital changes. For a company to respond to market challenges and even greater competition quickly, efficiently, and with quality, it is necessary to build a new, disruptive and innovative business model based on autonomous units separate from their headquarters, thus creating a basis for experimentation and fast learning as well as avoiding any misunderstandings and conflicts in the company - decisions 1) of **separate business units** (Verhoefa et al., 2020).

To adapt to standards, companies with multiple hierarchical innovations can no longer be effective in adapting to a digital environment with very rapid change, and a bureaucratic system that reduces accountability, responsiveness, and innovation. To stimulate 2) **digital business agility** in such environments, companies must require flexible organizational forms that enable fast and efficient responses to constant digital changes. One of the current reactions is the **holocratic** approach, characteristic of those organizations where purpose-led self-management is introduced in responsive companies.

In addition, a very important feature of digital transformation is the **increased correlation and reliance on IT and analytical functions in companies**, which will enable communication and a much more proactive role of digital value for the business success of companies in the market. From the aspect of human resource management, digital transformation means attracting employees with digital and analytical skills that can replace the current work environment.

Figure No. 3: Digital strategy through platforms and Ansoff matrix, source: (Verhoefa et al., 2020)



These are the main characteristics of 3) **digital functional sectors** that attract young and capable talents. To better understand how digital companies develop using a platform-based business model, it is very important to look at the Ansoff matrix that defines four key development strategies: **market penetration, product development, market development**, and diversification, which shows opportunities for revenue growth through new product and market development (Verhoefa et al., 2020).

At the same time, the platforms also allow customers to adapt a large number of activities by moving roles in the direction of **customers becoming suppliers** offering their products in online stores and markets (Airbnb and eBay), or becoming co-producers by designing, modifying, or customizing existing products and offerings (Dell PCs, NikeID, Threadless). Involvement of customers is necessary, and in the end, it is important to combine all stages of development into a single strategy in the process of **supply diversification** through digital platforms, to create additional development in unexplored markets and new products.

More precisely, this approach to digital transformation aims to expand digital platforms to conquer new markets, improve existing products and services, and create new companies and activities at the expense of the created network and cooperation with new, global partners (Google and Android), or through cooperation with interoperable platforms, providers, customers and complementary service providers (Facebook's Libra coin).

When it comes to measuring the success of digital transformation, the company should consider **key performance indicators** (KPIs) such as ROI, profitability, and revenue growth, noting that the relevance and use of these parameters vary depending on the stages of digital transformation. However, in the case of digital transformation, there are also certain intermediate processes in which it is necessary to reconsider how they create new value because these are still insufficiently researched new models and digital activities in the company.

3. METHODOLOGY OF THE RESEARCH

A scientific research project called "DIGagCOV: Support to SMEs in covid digitalization and digital payment" implemented the research which was conducted in 400 companies via questionnaire, as well as ten companies via interview, to collect and capture the real challenges which companies, buyers, and academia are dealing with, as well as to identify the opportunities for the future that are enabled by the digitalization.

Researching through questionnaires and interviews project team came to reliable results and challenges that are important for the development of further steps in supporting the digitalization of business from the aspect of changes in a company, education of the workforce, and reforming education. The goal of the research was to question if employees, consumers, and the whole population have enough knowledge, skills, and equipment to adapt to digital procedures, even though they show readiness for necessary changes, acquiring new skills and knowledge in work during COVID-19 pandemic (UDG, 2021).

DIGagCOV is a project implemented to point out numerous challenges and problems that the business sector in Montenegro currently encounters, and which are mainly related to insufficient knowledge and skills possessed by the workforce, insufficient technologies, and equipment to digitalize processes in a company as well as financial support of institutions and professional support of universities to employees and consumers which have to accept a digital offer that will be presented by the companies (Mićunović et al., 2021). Based on the results of the research, an analysis of problems, and the creation of a set of recommendations and measures to help companies and other actors to digitize activities, society's digitalization plan will include clear guidelines for companies to digitize the economy, for relevant institutions to digitize administrative processes, for academia sector to implement an educational program - quality education (UDG, 2021).

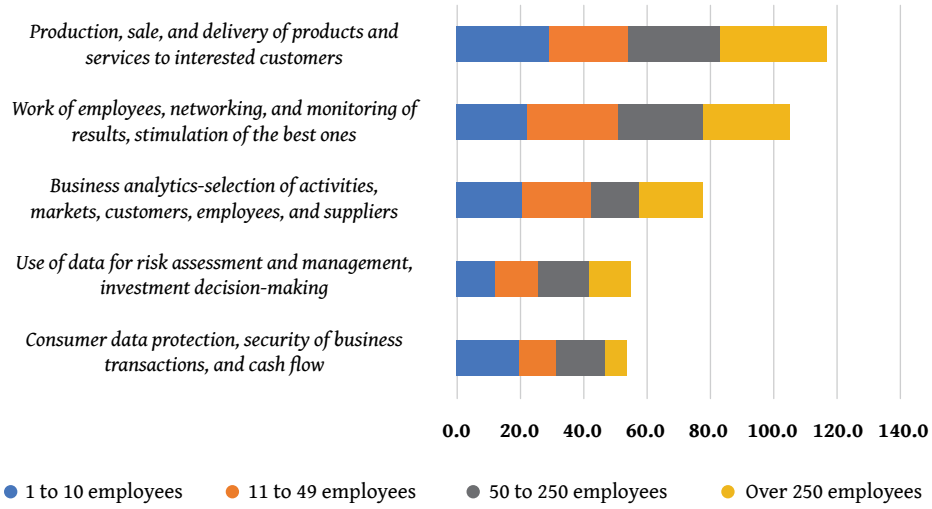
4. RESULTS AND DISCUSSIONS

DIGagCOV research has given interesting results. The research provided a complete picture of the impact of the COVID pandemic on the economy. According (to Golubović et al., 2021), it **affected the business of over 90% of enterprises**, in half of them the business activity was reduced by less than 50%, and in a third by more than 50%. The research shows that micro and small enterprises are much more affected by the pandemic than medium and large companies, and enterprises from the coastal region are much stronger than companies from the other two regions. For two-thirds (64.9%) of companies, the biggest impact of the pandemic was the **reduction of the sales market**, while in second place was the impact on liquidity (24.2%).

When we talk about the current state of business and the level of business digitalization before and during the Covid-19 crisis, a large number of companies have already decided to place their offer through digital solutions, instead of the traditional way of cooperation. Website and/or a profile on some of the social networks have **83,2% of surveyed companies** (Golubović et al., 2021). Of this number, the company (49.5%) has a website and a profile on one of the social networks. Also, the **coronavirus pandemic has affected the business of more than 90% of companies.** Every other company recorded a decrease in business activity by less than 50%, while more than a third of the enterprises decreased business activity by more than 50%. The impact of the pandemic was not reflected in the reduction of business activity in only 9% of companies.

When it comes to specific digital technologies that companies already need, out of the total number of surveyed companies, most companies pointed out the need for cloud computing via the **Internet - Cloud computing (21.4%)** and **social networks and media (21.2%)** to solve specific problems. On the other hand, the least need is for digital technologies in the form of **artificial intelligence and big data (7.5%)**. On the other hand, almost 17% of companies are not familiar with technologies at all.

Figure No. 4: The need for business digitalization (Golubović et al., 2021):



When we look at activities, the greatest need for cloud computing was expressed by companies in the field of **industry (27.3%)**, while the transport sector recorded the least need for this digital technology (13.3%). Companies from the **transport, tourism, and hospitality sectors**, as well as trade, stated the greatest need for **social networks and media (33.3%, 28.7%, and 27.6%, respectively)**. On the other hand, we have more than a quarter of companies in the **construction** sector, stating the need for **mobile technologies** (26.4%) (Golubović et al., 2021).

It is important to note that a lack of equipment and access to work for employees from home was highlighted as the least significant problem. Regarding all three packages of measures of the Government of Montenegro that were introduced to combat the effects of the pandemic on business, 29% of respondents were completely satisfied with them, and 13% of enterprises were not satisfied with the measures, and most (58%) were partially satisfied. The largest dissatisfaction with the measures was expressed by enterprises from the **transport sector** (18.5%) and industry (17.1%), and the least dissatisfied were from the tourism and **construction sectors** (8.5% and 8.7%). Interestingly, 46% of companies prefer the introduction of digitalization in the areas of **employee work, networking, monitoring results, and rewarding** (Golubović et al., 2021).

The consequences of the COVID-19 pandemic **led 10.8% of enterprises to plan the application of digital technologies in business**. In addition to these reasons, the enterprises also cited lower costs as a result of the introduction of digital technologies. As many as 97.8% of the companies in the sample pointed out that their digital transformation requires **stronger cooperation with the academic sector**, while 39.1% prefer cooperation in the development of digitalization programs.

More precisely, the research should result in conclusions that companies need **financial support and education of the workforce** for use of digital procedures and that neither consumers nor the population is not capable of using platforms without technology, hence it is important to create a **business digital ecosystem** that will work on **digitalization** of our society. Based on successfully realized questionnaires and interviews in the research project, we have come to main challenges and problems in business that companies face, which we classified by activities of companies, and on the same basis a set of support measures of covid digitalization was defined (Mićunović et al., 2021):

*Figure No. 5: Activity: **Industry and construction** (Mićunović et al., 2021)*

Problems which companies faced:	Recommendations that may be applied:
• *Incapability of tracking the production process* • *Insufficient technology for remote work* • *Disconnection of productions with other sectors* • *Unwillingness of employees for education and training* • *Impossible contact with current users* • *Unusable data for business analytics* • *Doubling of resources due to physical administration*	• *Modification of current activities in the company* • *Investment in infrastructure for remote work* • *Education of employees for digital business* • *Financial support and electronic services from the state* • *Cooperation with universities and companies on the preparation of digitalization and training plans for employees* • *Investment in technological solutions and digitalization* • *Creation of platforms with consumers*

*Figure No. 6: Activity: **IT sector and financial services** (Mićunović et al., 2021)*

Problems which companies faced:	Recommendations that may be applied:
• *Reduction of company's foreign operations* • *Inefficient cooperation with state institutions because of mandatory physical delivery of paperwork* • *Cancellation of agreed operations of companies in digital marketing with foreign clients* • *Insufficient competitiveness in the global market* • *Unreadiness of employees for education and training* • *Impossible contact with current users*	• *Digital cooperation between state and companies* • *Increase of company's project in Montenegro* • *Financial support and electronic services from the state* • *Cooperation with universities and companies on the preparation of digitalization and training plans for employees* • *Promotion of the importance of digital marketing* • *Creation of communication platforms with consumers* • *Networking of the company's offer in Montenegro*

*Figure No. 7: Activity: **Trade and tourism** (Mićunović et al., 2021)*

Problems which companies faced:	Recommendations that may be applied:
• *Partial or complete suspension of business operations* • *Incapability of tracking product stock status* • *Insufficient technology for remote work* • *Disconnection of sales sector and other sectors*	• *Modification of current company's operations* • *Investment in digital technologies, ERP systems and centralized databases, cloud systems* • *Investment in infrastructure for remote work* • *Education of employees for digital business*

• *Unwillingness of employees for education and training* • *Insufficient funds for digitalization of processes* • *Impossible contact with foreign users* • *Unusable data for business analytics* • *Doubling of resources due to physical administration*	• *Financial support and electronic services from the state* • *Cooperation with universities and companies on the preparation of digitalization and training plans for employees* • *Creation of new offers for consumers in Montenegro*

Recommendations for supporting the digitalization of companies:

After the analysis of research results via a questionnaire of 400 companies and interviewing 10 companies, which had a goal of collecting and defining real problems and challenges for companies during the crisis, the project team generated 12 recommendations for companies (Mićunović et al., 2021):

1. Period during the COVID-19 pandemic completely halted operations of most industries. Having in mind that, companies during and after the Covid-19 crisis must think about the survival of possibilities to exist without modification of activities and new business models, more precisely using a promotion, sales, and delivery of products and a new way of communication with consumers.

2. Besides production, companies must provide necessary conditions for remote work to other sectors, in case of another crisis. More precisely, it is necessary to provide networked computers, data, and documentation access, effective internal communication, and external cooperation with consumers.

3. In digital business you must be ready for changes - employees in different types of companies, disregarding the industry, must be ready for learning and improvement, and management which can enable education that will bring closer the importance of digital technologies not only for the company but for work efficiency of employees – digital technology is an opportunity, not a threat?

4. Depending on the company's market you need different support - businesses in the B2C market have to have a functional website as a platform for browsing and ordering products, but companies in the wholesale B2B market must have a website, to improve the company's brand and digital marketing.

5. Depending on the main type of business, the company needs various digital technologies, and for the industry sector, you need software solutions that will import products and other sectors, while on the other hand for trade companies request ERP systems that will monitor the movement of goods and enable efficient orders, and for tourism and trade a centralized database to track habits clients.

6. In some digital transformation cases, companies do not have enough knowledge to decide which technologies to invest in and how to find a quality IT workforce, and that is why they need the assistance of industry and universities that will provide the professional support for digital transformation.

7. The state must enable companies to submit documentation to institutions, the Tax Administration, and the Customs Administration electronically, thus avoiding unnecessary archiving of paperwork.

8. Through eGovernment and administrative portals, it is necessary to create a perspective network of different companies that will cooperate electronically and without physically submitting invoices.

9. Companies must create online platforms for communication with their business clients, by which they will moderate specific requests from customers during the crisis and that way correct the offer.

10. Companies must strive for an international market and partners with a global position because only by using this business network you can expect to adapt to digital standards and global practices.

11. The state must help all companies by securing them financial help through digital transformation.

12. The state must help all companies and institutions by securing their information about available national and international funds that will provide global competitiveness.

5. RESEARCH LIMITATIONS

Agile action once was an exclusive part of the IT sector, but now is an approach that must permeate through the whole sphere of business of an organization. Companies are forced into a **quick reaction, by remote work, requiring that teams work** productively and conduct actions at the speed of ongoing changes. Furthermore, security and domination of new ways of business do not mean that everything that can be realized digitally must halt (travel, teamwork, and other activities that are productive in person). That is why it is recommended that **online teams work in smaller groups** due to better efficiency (Fitzpatrick, 2020).

When creating a plan, a company has to engage associates that will create company values on a **long-term level** and set up as a company that is capable of sustaining itself despite numerous challenges of a crisis, as well as continue with successful investments and business in the future. Companies must respect the wishes of all key stakeholders, and enable active dialogue with customers, partners, and government institutions as part of decision-making and the creation of plans and strategies for the future (Kurznack, 2020).

It is very important that employees can learn and adapt to companies, that they are aware of opportunities to enhance their strategies and protection of iterative directions of efficient work. Therefore, the production of corporative strength is not based on training that surely is of essential importance for growth and quality, but to have capacity and agility for **learning and experimenting**. The pandemic will affect business and confront CEOs of companies with difficult decisions in the future. However, despite difficulties companies must adapt to the cycle of **employees' mindset** development because the key is not only in searching for new talents but in developing the skills of current employees as well (Fitzpatrick, 2020).

Different people in the company have different levels of understanding of the technologies and solutions they use, so when evaluating technology, it is necessary to precisely define the impact that digital technologies will have on the team when adapting to new solutions. Therefore, it is necessary to determine which capabilities the team already possesses and which ones it needs to implement the technology. It is very often the case that **you have a clear vision and need for digital technology**, but on the other side, you need significant investments in **education, training, and adaptation** and that from the company requests new financial resources and knowledge. One solution here is to outsource these business activities - to hire partners who have people with the required skills (Segal, 2020).

Understanding consumers is crucial while knowing how and how much their habits will change will enable the company to maximally adjust the offer, thanks to the mentioned data, the characteristics of the business-to-business-to-

consumer strategy (HBR, 2020). When choosing a technology that suits the business environment, it is necessary to examine the business capabilities of each digital solution offered and assess their impact on the growth and improvement of the company's business and the dynamic needs of the market. It is also necessary to calculate and compare the final implementation costs for each option offered, which include the costs of technology acquisition, ongoing licensing, maintenance, and support.

In addition to an acceptable price and satisfactory impact, it is necessary to implement technology that users will understand and want to use. Therefore, it is necessary to carefully **prepare training** that will bring technology closer to employees and users and enable customer satisfaction. We must avoid the option of **employees becoming confused** due to multiple technological choices. Therefore, it is necessary to introduce the technology that is desirable for that company according to the defined priorities and research. It is also up to companies/users to make efforts to provide quality education for the application of digital technologies (Menon, 2020).

When applying the digital, it is very important that the head of the IT sector in the company feels the need to seek those expert recommendations and market research results when preparing a digital strategy. Although the IT sector plays an important role in the digital transformation, the work on the implementation and adaptation of many changes depends on all employees in the company, which leads to the **transformation of employees, work positions, and processes** (Swanson, 2020). Very often employees believe that digital transformation will jeopardize their work, which is why leaders must recognize these fears and emphasize to employees that the introduction of digital technologies can be just an opportunity for them to upgrade their knowledge and skills and become competitive and efficient in the digital market (Tabrizi, 2019).

The main roles and structures of **national and local governments, state agencies, humanitarian organizations, and public administration bodies** differ from country to country. However, in typical areas that are coordinated by the state, such as public health, transport, infrastructure, police and defense, civil services, and regulation, there are multiple similarities in challenges and priorities, not the least from the perspective of digital transformation. **Transparency, efficiency, and coordination** are key factors in the digitalization of processes in many of these areas. Research suggests that most professionals in the public sector recognize the disruptive effect of digital technologies on the state which reflects through expense sustainability in a world of big changes, as well as movements that the state must recognize as soon as possible (IScoop, 2016).

Many companies use digitalization primarily for **cost efficiency** - they create digital channels to replace human interaction and the employment of people who are proving less and less competitive with digital activities. These are the characteristics of the **inside out and cost efficiency strategies**, which bring the optimization of independent departments, but it limits the benefits for the customer, so with such strategies, a competitive advantage cannot be created. On the other hand, if companies want to create a sustainable impact on the consumer, they **must generate an idea** of products and services in his mind: **outside-in digital strategy**, characterized by a greater degree of customer involvement, transfer to a direct, tied, participatory business model (Lemmens, 2020).

One of the main competitive advantages and differences in the success of the digital transformation is the quality management of important data through artificial intelligence systems - AI, which should result in translating raw data into useful and efficient conclusions, and sometimes concrete activities guided by those conclusions. Therefore, have in mind that data without a conclusion is insignificant, and also a conclusion without concrete action is meaningless. We must not be guided by the fact that artificial intelligence technologies or smart scientists are crucial for the success of digital processes, the main strength of the best is something completely different - **data-driven organizational culture**, those who work in collaboration with data win (Frankiewicz, 2020).

After the company's team develops a digital transformation strategy, the next step is to develop a **specialized digital manual for company managers** - how to implement the strategy in terms of application of digital technologies, education, and training of employees, changing established procedures, and ways of communicating with customers, delivery of products and services and many other important segments. The dilemma when applying the strategy is whether to use the integration or separation approach.

On the one hand, it is recommended to **create a separate structure that will separate the traditional and new business operations** by applying a digital strategy to make a solid boundary and key difference between established and modern procedures and emphasize innovative and flexible digital business models.

On the other hand, for companies that are gradually digitizing business processes, the **integration of digital with traditional business processes is a much more efficient model**, provided that changes and risk-taking are also supported by management.

To implement change, management and employees need a new set of skills, which will use the use of digital technologies in the right way and achieve maximum efficiency and productivity. There is a dilemma whether to hire a third party - **outsourcing** processes related to new business skills, or internally create the mentioned competencies, and that depends mainly on the level of complexity of technological processes planned in the company. Perhaps the best proposal for management is a **combination of internal solutions and partnership in the implementation of technological solutions**, to ensure quality in the company so as not to lose competence and create the envy of third parties. (Hess et al., 2016).

Figure No. 8: Key questions for creating a digital transformation strategy (Hess, 2016)

Use of technologies

1. Strategic role of IT?	*Enabler*			*Supporter*	
2. Technological ambition?	*Innovator*		*Early adopter*		*Follower*

Changes in value creation

3. Degree of digital diversification?	*Electronic sales channels*	*Cross-media*	*Enriched-media*	*Content platforms*	*Extended business*
4. Revenue creation?	*Paid content*	*Freemium*	*Advertising*	*Complementary products*	
5. Future main business scope?	*Content creation*	*Content aggregation*	*Content distribution*	*Management of content platforms*	*Other*

Structural changes

6. Responsibility for digital transformation strategy?	*Group CEO*	*CEO of business unit*	*Group CDO*	*Group CIO*
7. Organizational positioning of new activities?	*Integrated*		*Separated*	
8. Focus on operational changes?	*Products and services*	*Business processes*	*Skills*	
9. Building competencies?	*Internally*	*Partner-ships*	*Company takeovers*	*External sourcing*

Financial aspects

10. Financial pressure on the current core business?	*Low*	*Medium*	*High*
11. Financing of new activities?	*Internal*	*External*	

In addition to the changes and skills necessary to implement them well, the **financial aspect** of the digital transformation is also very important, and it depends mainly on the current results of the company. If management is successful based on traditional business models, it does not mean that the company does not need digital transformation. That is why companies must **plan for digitalization or digital transformation in the future** because a delayed reaction in terms of adapting to digital business concerning the competition leads the company to business failure. Also, to finance the digital transformation strategy, it is necessary to monitor the current business parameters of the company, because if the company is not liquid and solvent digital transformation process can be a very challenging investment.

That is why it is important to engage a team that will work on assessing the need for the development and implementation of a digital transformation strategy in the company, which will consist of representatives of **universities, companies, and institutions** - all actors who know how the system works, and who can determine the company's position in a digital society. Precisely because of its complexity, financial and operational risk, it is very important to systematically approach the creation of a digital business model, and provide management with a quality strategy and expert assessment of the need for digital business transformation, and acquaint management with examples of successful digitalization challenges that his company and employees might also face (Hess et al., 2016).

It is also important to keep in mind that individual entrepreneurs or companies cannot create all the necessary preconditions for digital transformation and market success on their own, but the **digital infrastructure** is necessary for networking the economy at the national level. Due to the high dependence of companies on the business environment, which consists of **regulatory frameworks of states, research potentials of universities, investment climate, and financial resources, but also cyber security** (Ilba & Infodom, 2016), it is necessary to have measures that will provide answers to the questions:

1. What is the role of owners and managers in digital transformation?
2. How to accelerate and increase investment in digital transformation?
3. Who is responsible and who is leading the digital transformation?
4. What is a "Digital" leader?

5. Challenges of Robotics and Industry 4.0

6. What are the requirements for new jobs (e-Skills)?

7. What is the legal framework and financial arrangements needed to motivate and reward?

8. How to join and participate in EU initiatives for digital transformation?

9. How to take advantage of the big drop in equipment prices from Industry 4.0?

The strategic focus of digital transformation will be on the following seven priority domains, including the achievements planned within them: efficient and transparent public administration, excellent business and economy, profitable and socially responsible state, accelerated regional and rural development, digital transformation, and accelerated development of digital economy, popularization, and development of creative industries and innovations in all segments, development of knowledge in the sphere of economy, economy, society and individual (Ilba & Infodom, 2016).

6. CONCLUSION

The fact is that digital strategy requires **digital maturity** - the ability of organizations and companies to transform processes, support talent, and establish effective activities. Digital transformation of the company is not essentially a question of technology application, it requires a much broader approach to **organizational, cultural, and technological** changes that will be led by the top, more precisely leaders who will stimulate **risk-taking, create new processes, acquire digital skills that will make business networked and simple, attractive, and competitive for the global market.** The essence of these changes in the framework of digital transformation does not lie in the application of individual technologies, but in the way companies integrate them to transform models with an emphasis on social, mobile, analytical, and cloud, as factors of digital technologies (Kane et al., 2015).

However, having in mind the trends with which digital technologies are rapidly developing, it is necessary to think about the scope of digitalization, especially from the point of view of the relationship between **technology and man**? In the book "Superconnected", Mary Čejko argues that not everything can be digitalized, especially ***"tangible and intangible subtle nuances of interpersonal relationships, which cannot be coded and numerically transmitted."*** More precisely, technologies do not have the characteristics of human action, and therefore do not know how to think independently and independently of human and social forces.

However, it is very important not to distance oneself from technology because it has become an indispensable part of human life, but to use technology efficiently and not allow it to show some bad effects that can have on man and society (online abuse, online surveillance and uncontrolled use of the Internet). Also, it is very important to think in the direction that technology was created and managed by man, and in that context to analyze the concept of **social constructivism** - an approach to studying technology from the point of view of its origin and use with forces such as political power of social class differences. (Čejko, 2019).

What sets digital leaders apart from others is a solid **competitive digital strategy** combined with the culture and leadership necessary to implement digital transformation. Specifically, you cannot expect the implementation of ERP and other digital solutions to bring success if you do not have a change of mindset and the introduction of a process that will build a **culture of change in the company among employees, customers, partners, and other stakeholders**. Although there are differences in the application of technologies depending on the digital maturity of the company, four technologies (social, mobile, analytical, and cloud) are essentially developing into equally important business goals.

Benn Konsynski, a professor at George S. Craft Distinguished University, recommends that for organizations to become digitally transformed, the most effective approach is to act backward from their future vision: **"The future is best seen with a running start"**. It is, therefore, necessary to review business and the market and then work on finding new capabilities that will create new business solutions and the market. That is why it is important to find employees who will establish a digital business and the two characteristics of implementing the strategy are **culture** and **leadership** (Kane et al., 2015).

John Chambers, CEO of CISCO, sees the reasons for the belated response to the digital in the aversion to taking risks and implementing change, not only by managers but also by all employees in the company. Therefore, he claims that one of the key tasks of **leaders in the company is to empower the employee to take responsibility,**

because very often employees expect brilliant ideas and innovations from their leaders, not realizing that the creators of these innovations are them, the network of employees from different sectors, who best know the processes and gaps in the company. That is why companies with high digital maturity already recognize the need to introduce a **competitive environment among employees**, strive to **establish cross-sectoral teams** that will network employees, and allow them to create new initiatives - accepting this risk is a key prerequisite for innovation and knowledge.

What is certainly a dilemma is **whether culture governs technology or technology governs culture**? Perhaps the best answer is given by dr John Halmk, CEO at Beth Israel Deaconess' Medical center, who says: "***I have never seen a technology drive change on its own***", and that culture is the factor that regulates the degree of application of technology in society, company, and family. Therefore, the ability to innovate largely depends on the characteristics of our culture.

Culture and technology are inextricably linked and cannot function without each other. For example, no matter if you replace your desktop computer with a laptop that allows you to move and work in different places in the company if your culture does not allow you to meet others and work together in a team, you will stay in the same place with the laptop. Therefore we need to think in the direction - **what our behavior can accelerate the application of digital technologies in the company**? (Kane et al., 2015).

The next topic to think about is how to recognize and evaluate new knowledge and skills to be applied? Paul Leonardi, a professor at the University of California Santa Barbara, argues that it is very difficult to evaluate created forms of knowledge when you are unable to recognize their existence: "***This is the paradox of the system like this, I think, that people learned a lot by just becoming aware. They learned by proactively scanning the environment, without any idea that anything they were gleaning would be useful in the future.***"

That is why, unfortunately, in the traditional business system, employees decide to research, collect, and analyze data only when they get into problems, and treat everything they collect from information at that moment as knowledge and a solution to the problem. That is why it is important to support employees to look at their ideas, proposals, and solutions as knowledge and skills that can encourage the process of digital transformation in the company, family, and society.

Another factor of successful digital transformation is the **use of data in a decision-making and process implementation**. Data analytics is crucial for globally competitive business, so now digital platforms connect data collection with analytics and business intelligence in real-time, which provides a quality assessment based on which you can plan and execute future decisions and investments in the company. These diagnostic tools give companies a new perspective on the future of the company, so they need to be provided now (Kane et al., 2015).

Jose Ortega also talks about the importance of culture and truth much earlier, claiming that "***whoever wants to live the idea must love the truth and accept the rules that the game imposes.***" These rules are the principles of culture because where there is no culture there are no rules that could be applied: "***The lowest or highest level of culture is measured by the lowest or highest precision of the rules.***" This is the essential difference between the digital, which is available to everyone without responsibility, and the physical, which primarily requires effort and commitment, and responsibility for words, behaviors, and actions (Ortega, 2013).

It is very important to react promptly to the mentioned knowledge and information, and to prepare a plan for the implementation of changes in the company: "***By the time it's obvious you need to change, it's usually too late***" - John Chambers, Cisco CEO. It is now much clearer why the application of digital technologies is not crucial for digital transformation, but precisely **digital maturity as a product of strategy, culture, and leadership**. The sooner management strengthens these fields and increases digital maturity, the more successful digital transformation is closer to the company and thus to other actors in society.

Although leaders do not need to be technology experts, it is important that they understand the relationship between their company's business processes and the technology that can improve it, and that the company's success in the future will depend on the ability of leaders and employees to transform **digital business processes, solutions, agile projects, smart leaders and employees with soft skills** (Kane et al., 2015).

Digital culture has made it possible to create many cultural forms backed by numerous software and platforms, created as a result of humanity's growing demands for greater freedom of access and comfort, which are of course approved by political systems. A direct **relationship between technology and liberalism is being created**, while open platforms and free access to software have led to

the creation of a "**recursive audience**" - a committed population that prepares a modern approach to digital life. Emphasis is placed on the simulation of human reasoning and experience, and when designing solutions, attention is focused on heuristic problem-solving techniques, where there are three ways to get to solutions that are not guided by the relation itself, through acquired knowledge, intuition, or common sense (Vasić, 2010).

Each dilemma in this work has a goal of pointing out the width of approach during the research of needs for digital transformation, so it is important to have in mind that none of these dilemmas offer a defective, universal response. Therefore, the management and employees of the company, with professional support, **should investigate the answers to the mentioned business challenges, dilemmas, and questions based on which they will define gaps in the company**, and then fill the current gaps with digital solutions and thus create a competitive business model.

Now the current theory is the **blurring of a clear relationship between the virtual and the real**, according to which we cannot accept the theory of complete separation. The greatest attention within this area is focused on the process that analyzes three types of relationships between the virtual and the real: **autonomy - separation, dichotomy – convergence**, and finally **blurring - merging**. Ilana Gershon explains the essence of understanding the relationship between the virtual and the real, stating that the disconnections that happen every day are not interruptions of real and virtual interactions, but **disconnections between people, such as ending a friendship** (Horst & Miller, 2012).

Now is the new, digital age, in which we need to re-examine the logic of a deeper, professional re-examination, all to find an answer in favor of generalization: "***To a man with a hammer, everything looks like nails.***" Also, it is now important to have as many tools as possible, to solve as many problems as possible, some of which very often come in a package (Mansharamani, 2020). To develop as many skills and abilities as a tool that offers a much wider range of services, **we need to be very flexible and agile, learn to act in uncertain times, as well as take much more care of the context in which we make decisions**. It is, therefore, necessary to continue digging into the depths, only now to think and search much more widely than we once did, without the overly specialized goal, knowledge, and skills we will achieve, because it is this flexibility to look broadly and perfect different things, everything enables us to be inhabitants of the global world!

John Zerzan (2004) in his work "Against Technology" points out that "***we live in an impoverished, mediating world in which technology is seen as an extension of the senses, but this extension still seems to cause numbness and atrophy of the senses themselves.***" He re-examines the necessity of a technological approach to everything, claiming that technology today offers solutions to all problems and at the same time sends the message that all we need is a little more technology.
Multinational companies, as the main capitalist forces in the context of globalization, have a great influence and control over the population, especially by investing in the processes of creating and owning virtual worlds, explains *Tom Boellstorff* (2004) in his book "*Coming of Age in Second Life*". These companies, through virtual worlds and digital technologies, achieve much more notable results than most countries and companies would achieve by doing business in the real world, all thanks to the creation of creationist capitalism - a creative industry that is a form of global business and production.

On the other hand, *Jacques Ellul* (1954) in his work "*Technological Society*", believes that a working man is not happy at his job, especially when "***the constant practice of impersonal work leads to complete depersonalization of workers***." The greatest danger arises if we allow a person to perform only some mechanical operations because then there is a ***psychological separation of intelligence and action***. Ellul claims that an individual cannot be "absent" at work, because "***work is an expression of life***". New digital trends are being created, a new form of production and market characteristic of marketing those products that customers have already bought, which proves that there is a ***creative business in which money is not crucial, but self-fulfillment and social efficiency*** - creativity market leads to freedom and satisfaction all consumer needs.

That is why today giant companies strive to hire multifunctional employees, who are agile and ready to function from team to team, adapt and learn in a given environment, and those who possess general cognitive abilities, thanks to which they become aware of how fast ONE company in the digital age needs to evolve and looks for new jobs. These are smart generalists (Lisa Stern Hayes, Google). That is why young people who are just now entering the educational waters should direct their educational plans towards acquiring various geographical and functional knowledge and skills that will provide them with skills that will enable them to easily find new gaps, as well as innovations to fill that (Mansharamani, 2020).

7. ACKNOWLEDGEMENT

This research is supported in part by the **Ministry of Science of Montenegro**, project DIGagCOV, grant number: **02/2-062/20-890/3**, from June 20, 2020.

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2.

Original research paper

GENDER DIFFERENCES AND INTERNET USAGE

GENDER DIFFERENCES AND INTERNET USAGE

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ABSTRACT:

The aim of this paper is to examine Internet usage by gender difference; using a decision tree method, including individual and interactive influence of these factors on gender-specific differences.

By indicating the differences between male and female internet users in terms of their behavior on the internet it can help to deeply understand the motive for using different content on the Internet. An online survey involved 1147 respondents.

Differences in their online preferences are important in better understanding of their online orientation and give a better picture how to enable the adequate and targeted placement of information, actions or products and services for the intended target groups. This study confirms that the decision tree model can be efficiently used to identify gender differences online.

Keywords: internet usage, gender differences, decision tree, internet tasks

1. INTRODUCTION

Since the Internet has completely changed society, consumers' behaviour, their preferences and the anticipation of their reactions in the new digital environment and economically, politically, psychologically and sociologically have become an arena of the new very important investigation, which is necessary for the anticipation of further online user behaviour.

In the current conditions of the development of the digital economy, with all the advantages and freedoms it brings with it, there are still differences in ways of

using the internet. The reasons for this are numerous, from the level of a country's development and its digital divide, to its cultural framework and the role of women and men within a certain social and cultural context, as well as the model of their behaviour on the internet.

Research has established that online behaviour is an extension of broader social roles, and that, as the internet matures, "digital inequalities continue to combine with race, class, gender and other offline axes of inequality" (Robinson et al. 2015).

With the growing number of Internet users, some difference become less and less important (computers, internet connections and thus access become cheaper every day; the adoption rate of computers, smartphones, and the internet are higher than of any previous medium), while some still retain significance (such as gender, income, education and ethnicity and society context) which continue to influence the level and manner of internet use.

The above facts point to the possibility of exploring the phenomenon based on and starting from the results of previous research on the topic. It is very important to examine those factors that influence patterns of internet use, not only because it provides a more detailed view and a deeper overview of usage characteristics, but also because it opens up new opportunities for understanding existing and deepening potential future studies. The model was modified due to the development of the new access models and including various individual, interactive impacts of certain factors.

The study uses data collected via a survey conducted in Montenegro, as an online survey.

Montenegro, a country in transition, with a population of 629 219, has 65.9% Internet penetration (the number of active Internet users in relation to the total population), which is a total of 439 624 internet users in December, 2017 and 320 000 Facebook users in Dec 2017, which is a 50.9% penetration rate (Internet world stats).

Montenegro, alongside other Western Balkan countries, is above the world average as regards the degree of use of digital technologies (2017 Digital Yearbook). According to this survey, 76% of the European population uses the internet, which is significantly higher than the world average, which in 2017 amounted to 50.5%. Internet penetration in Montenegro is below the European average, but above the world average. Montenegro has also been late in adopting digital technologies, in comparison to other European countries, but has the highest penetration of social media in Europe – 56% (350 000 social media users), which is significantly above the European average (49%).

The Decision Tree (DT) method (Oña et al., 2012, Rondović et al., 2018) was used to analyse the survey data. This method enabled the identification of the relationship between several variables as well as how this relationship highlighted possible interactions between these variables.

The main goal is to examine whether or not the DT method can generate more objective and reliable results in identifying these patterns than the standard statistical methods used in previous research.

2. LITERATURE OVERVIEW

A large number of papers have studied the influence of gender differences and digital inequalities in the social, economic and cultural context (Robinson et al. 2015), as well as the digital divide and the type of usage activities (van Deursen and van Dijk 2014) and analysed them in the context of their impact on the method and modalities of internet use.

Gender differences have been researched in relation to various topics related to the information systems (IS) field and some studies (Imhof et al. 2007, Iniesta-Bonillo et al. 2013) show the opposite for some of the ICT items and highlight that this might "be a sign of the progressive adoption of technologies by the population and the final balance of their use between men and women, breaking old patterns or schemes in this sense".

Gender differences in Internet use patterns have been confirmed in the literature multiple times. For instance, it has been found that women use the Internet more as a communication channel, while men use the Internet more to find information, as well as for entertainment, shopping and online gaming (Jackson et al., 2001; Schumacher and Morahan-Martin, 2001; Valkenburg and Peter, 2007; Zillien and Hargittai, 2009).

Teo and Lim (2000) examined the internet phenomenon in Singapore (in 2000 that was the country with the highest densities of the internet users in the world) related

to gender differences in respect of the demographic characteristics of internet users, usage patterns, task preferences and factors that affect the convenience of internet experience. The study's results indicated that "women under 21 years of age generally spent more time on messaging activities compared to men" (Teo and Lim 2000). However, no significant differences were detected for 21 to 30 and over 30 age groups. Furthermore, men were more likely involved in download activities from women, and purchasing activities are carried out infrequently by both men and women. Generally, this study showed that there are gender differences in usage and observation the Internet. Previous papers dealing with the analysis of the internet usage mainly relied on factor analysis (Blank and Groselj 2014, Zhou et al., 2014, Ramírez-Correa et al., 2015, Patwardhan et al., 2016). This type of analysis requires that the reliability and validity of factors are tested first, i.e. the factors that are relevant for the assessment of the dependent variable are determined. After that, hypotheses on the influence of these factors on the dependent variable are defined and tested using regression. If an impact is not specified in advance by an appropriate hypothesis, it will not be identified in this analysis.

The DT method identifies automatically the factors that are relevant to the analysis, as well as the importance of these factors for the dependent variable. In this method, it is not necessary to define in advance the hypotheses on the impact of factors on the dependent variable and it is also possible to detect impacts that were not supposed to exist (Oña et al., 2012). In regression models, it is sometimes difficult to find the appropriate functional form, and the problem of multicollinearity of factors frequently arises. Such issues are avoided in the DT approach which generates a model that is interpreted using simple "if-then" rules (Rondović et al., 2018).

Using Ordinary Least Squares (OLS) regressions, Blank and Groselj (2014) examine three dimensions of internet use – the amount of use, the variety of use and the types of use. In some studies, internet usage patterns are analysed using multivariable logistic regression or (probit) regression (Goldfarb and Prince 2007, Drabowitz 2014, Penard et al. 2015, van Deursen et al. 2015, Yu et al. 2015).

For most of these regression models, the coefficient of determination is low, and therefore we cannot speak of any significant interactive impact of the independent variables on the observed dependent variable, but only of a statistically significant impact of specific individual variables. In contrast to the regression method, the proposed DT method allows for the identification of the interactive impact of variables on the dependent variable with satisfactory precision.

Nevertheless, the literature points out some disadvantages of the DT model. Namely, the model construction is based on seed (random) numbers, so the resulting models may vary depending on them (Oña et al., 2012). However, randomization is present when generating predictive models (in selecting different training and test sets). Since this study aims for detecting rather than predicting gender-specific patterns of Internet user behaviour, the DT method is used to classify an entire set of data and the instability of the DT model due to seed numbers has no impact on the results.

3. METHODOLOGY OF THE RESEARCH

In the professional literature, in order to determine the most important factors that impact online behaviour and internet usage patterns, numerous studies involved various demographic (e.g. gender, age, education, income, location, employment and education level) and non-demographic variables such as type of internet access (home, mobile or work access), skills, attitude, motivation or the digital divide, and the diversity of internet activities (Di Maggio et al. 2004, Kimbrough et al. 2013, Gonzales 2015, Borg and Smith 2018).

From a review of the literature (Wasserman and Richmond Abbott 2005, Hargittai 2010), women have both a lower frequency and intensity of use, compared to men; but also women are more likely to underestimate their online skills and abilities (Hargittai and Shaw 2015) even if they belong to the group of internet users with objectively strong skills.

The results of many research follow patterns established by Social Role Theory (Eagly 1987), which suggest that "men use the internet and mediated communication to achieve agentic goals" (achieving independence and being task oriented) and women are more communal oriented (focused on establishing bonds within social interaction) which is still in accordance with gender role expectations (Kimbrough et al. 2013). Some researches (Weiser 2000, 2001) have shown that men use the internet primarily for fun and entertainment, unlike women– in order to read news, get information about sport, finance or politics or play games while women more often use the internet for interpersonal communication, such as e mail, chatting and educational assistance.

The following research questions are identified:

Are there any significant gender differences and what are they as regards the following:

1. Respondents'demographic profile?
2. Internet access profile?
3. Internet usage patterns?
4. Internet tasks?

Drawing on the method set out in Teo and Lim (2000); which structural validity is unguestionable and appropriate in the modern understanding of internet activity; we compiled a questionnaire, which is to a certain extent different from theirs. In order to gain a better understanding of the changes in the use of the internet for various purposes, face-to-face interviews with 20 internet users were conducted. These interviews provided feedback on their generic uses of the internet and the detailed tasks the internet is being used for by them. Based on the results of the interview, we identified five generic forms of internet usage, which differ from the forms identified in the study mentioned above:

1. Messaging (e-mailing, messaging via mobile online platforms, messaging on social networks)
2. Browsing (using a browser Microsoft Edge, Chrome, Mozzila Firefox, Safari, Opera, to surf and searching the internet -World Wide Web)
3. Downloading and streaming
4. Purchasing
5. Uploading

These differences relate to the new modalities of using the internet – notably streaming and uploading, but also to the structure of the use of messaging and browsing. The accelerated development of the internet has enabled its use for new, more diverse forms of internet communication, such as communication on social networks and mobile platforms (including, for example, Viber and all sorts of Messengers). In addition to mediated communication, social network users are increasingly using the internet for the purpose of uploading different materials to the internet and for streaming. Based on the obtained information, detailed internet tasks were generated.

On the basis of the framework developed in Teo and Lim (2000), the interview and the identified generic forms of internet use.

A survey questionnaire was created in order to generate data on:

1. The demographic characteristics of the internet user
2. The internet access profile in terms of access account types, browsers used, and access locations
3. The frequency of usage and the daily use of the internet (concerning five generic activities – messaging, browsing, downloading and streaming, online shopping and uploading)
4. Internet tasks

The demographic profile of internet users refers to their sex, age, education and occupation. The user's age is represented by five categories, ranging from 18+ to over 50s.

The Internet access profile was analysed with respect of access account types, browsers used, and access locations (in terms of the first and the second option).

Internet usage patterns were examined concerning five generic uses of the internet, by the frequency and time of internet use. Each variable – frequency of use and time spent on the internet was measured on a 7-point Likert scale, with scale range from 1 to 7. For the frequency of internet use, the scale range was from 1 (never/almost never), to 7 (at least once an hour each day). For all the items of daily time spent on the internet, (using some of above mentioned five generic uses of the internet) the same scale is applied: 1 (never/almost never), 2 (less than 1 hour), 3 (almost 1 hour), 4 (1 to 2 hours), 5 (2 to 3 hours), 6 (3 to 5 hours), and 7 (more than 5 hours).

The survey also listed several tasks related to different types of information, communication patterns and other activities that the internet is used for. The respondents were asked to evaluate their degree of use for each task on the 7-point Likert scale from 1 (very low) to 7 (very high).

An online survey was generated using Google docs forms and posted online. The advantages of online surveys are that they provide the opportunity to generate a larger sample at very low costs and their faster response rate, in terms of both time and accuracy, since Google tools allow user to check the accuracy, order and conditionality of survey completion. This ensures the accuracy and completeness of each completed survey, as well as its usefulness in further analysis.

Although the number of participants and the structure of the sample cannot be predicted, which is generally a problem we face when collecting data in online surveys, we mitigated this factor by publishing the survey in as many online and offline places as possible.

The survey was available for completion for a 60-day period (from January to March 2018) and completed by 1 147 respondents; all the responses were usable for further research.

Table 1 shows the variables generated on the basis of survey's results and their distribution.

Table 1. Variables and their distribution.

Variables	Woman	Man
Demographic profile		
Sex	Woman (670), Man (0)	Woman (0), Man (477)
Age	40 - 50 (61), >50 (16), 36 - 40 (50), 18 - 24 (425), 25 - 30 (88), 31 - 35 (30)	40 - 50 (48), >50 (21), 36 - 40 (58), 18 - 24 (218), 25 - 30 (69), 31 - 35 (63)
Education	Postgraduate degree (114), Bachelor degree (129), Secondary school (29), Student (388), IT diploma (4), Others (6)	Postgraduate degree (92), Bachelor degree (113), Secondary school (39), Student (198), IT diploma (26), Others (9)
Occupation	University job (47), Telecommunication (13), Student (393), Unemployed (24), Finance (43), Others (124), IT-related job (11), Self employed (15)	University job (50), Telecommunication (36), Student (193), Unemployed (26), Finance (25), Others (91), IT-related job (26), Self employed (30)
Internet access profile		
Access_type	Academic (107), Foreign (175), Company (139), Local (212), Others (37)	Academic (65), Foreign (153), Company (127), Local (111), Others (21)
Browser	Chrome (487), Microsoft Edge (ex Internet Explorer) (38), Safari (68), Mozilla Firefox (57), Opera (11), Others (9)	Chrome (343), Microsoft Edge (ex Internet Explorer) (37), Safari (34), Mozilla Firefox (47), Opera (10), Others (6)
Access_location	Home (203), Cell Phone (374), Work (84), Faculty (5), Others (4)	Home (153), Cell Phone (229), Work (83), Faculty (8), Others (4)
Access_location 2nd	Faculty (60), Work (83), Cell Phone (206), Home (304), Others (17)	Faculty (34), Work (63), Cell Phone (160), Home (206), Others (14)
Internet usage patterns		
Messages_freq	avg = 5.790 +/- 1.262	avg = 5.694 +/- 1.322
Messages_time	avg = 4.004 +/- 1.888	avg = 3.753 +/- 1.709
Browsing_freq	avg = 5.693 +/- 0.915	avg = 5.889 +/- 0.871
Browsing_time	avg = 3.843 +/- 1.570	avg = 4.004 +/- 1.522
Download& Streaming_freq	avg = 3.597 +/- 1.557	avg = 4.174 +/- 1.650
Download& Streaming_time	avg = 2.488 +/- 1.472	avg = 2.962 +/- 1.589
Purchasing_freq	avg = 1.746 +/- 0.882	avg = 2.107 +/- 1.137
Purchasing_time	avg = 1.557 +/- 1.078	avg = 1.639 +/- 1.057
Upload_freq	avg = 2.672 +/- 1.479	avg = 2.581 +/- 1.583
Upload_time	avg = 2.009 +/- 1.298	avg = 1.964 +/- 1.362
Internet tasks		
Leisure	avg = 5.267 +/- 1.723	avg = 5.159 +/- 1.661
Technology	avg = 4.815 +/- 1.663	avg = 5.233 +/- 1.521
Education	avg = 5.504 +/- 1.366	avg = 5.166 +/- 1.513
Business	avg = 4.906 +/- 1.742	avg = 5.086 +/- 1.619
Economics	avg = 4.374 +/- 1.896	avg = 4.468 +/- 1.835
Politics	avg = 3.831 +/- 2.212	avg = 4.354 +/- 2.119
Sport	avg = 4.187 +/- 2.198	avg = 5.325 +/- 1.951
Travel	avg = 5.542 +/- 1.553	avg = 5.090 +/- 1.698
Local friends	avg = 6.254 +/- 1.223	avg = 5.832 +/- 1.437
Overseas friends	avg = 5.615 +/- 1.671	avg = 5.249 +/- 1.764

Other people locally	avg = 4.884 +/- 1.949	avg = 4.805 +/- 1.906
Other people overseas	avg = 4.310 +/- 2.249	avg = 4.321 +/- 2.095
Online community	avg = 4.057 +/- 2.296	avg = 3.994 +/- 2.207
Online learning	avg = 4.134 +/- 1.943	avg = 4.287 +/- 1.972
Gaming	avg = 2.397 +/- 1.909	avg = 3.373 +/- 2.295
Betting	avg = 1.461 +/- 1.346	avg = 2.302 +/- 2.102
Online payments	avg = 2.731 +/- 1.942	avg = 3.415 +/- 2.164
Apply for job	avg = 3.051 +/- 2.083	avg = 3.235 +/- 2.106

When analysing the distribution of variables from table 1, it's noticeable that there is a higher number of female respondents (about 60%), and that most of the respondents are students (51%) and people with a higher education degree, whether graduate or postgraduate (about 39%). As far as occupation is concerned, students (51% of all respondents) and university employees (about 8.5%) prevail. Such a distribution of respondents might indicate that female gender and higher education have a positive impact on the use of the internet in Montenegro. In addition, some job posts/occupations such as those of university employees and students involve the greater use of the internet. The majority of respondents are in the 18 to 24 and 25 to 30 age groups, thereby suggests that Montenegrin internet users in Montenegro are mostly younger adults.

Also, the majority of respondents in our research use mobile phones as their main access location. Women do that more than men, and, therefore, there are significant gender differences, which does not follow the results of some previous studies (Teo and Lim 2000), which found that both sexes almost equally access the internet from their home, which is the main access location. This also points to the fact that new models of access which accelerate communication are used more by women. The respondents stated that they most frequently accessed the internet from their mobile phones, followed by accessing at home, and then at work. The second most frequent location for internet access is the home, for both genders. The most common internet browser used by both male and female internet users is Google Chrome, followed by other browsers, to a total of a non-significant number (about 27%).

Based on the distribution of variables in table 1, it can be seen that the frequency and time of messaging and browsing are higher than for other forms of internet use for both genders. It is also noted that messaging time and frequency are higher for women, while it is browsing time and frequency that are higher for men. The values for uploading are higher for women.

It is noticeable that access to information in the fields of travel, education and leisure, as internet tasks, are present to a larger extent than other forms of internet tasks for both genders. In addition, it was observed that women access information in the areas of travel, education and leisure more often, while it is the areas of sports, technology and leisure that men access more frequently. Internet tasks related to communication with friends overseas have the highest values for both genders, while other tasks related to communication are equally present. Of the other tasks, online learning and applying for jobs have the highest mean values for both genders. In addition, gaming and online payments are more common for men.

The decision tree method

The decision tree model is a classification data mining method whose major goal is to generate explicit class descriptions.

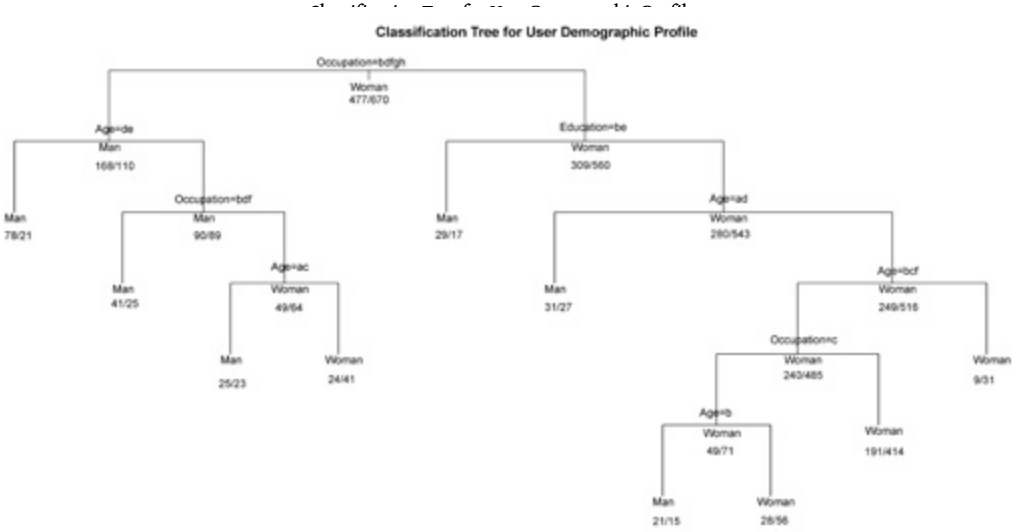
The DT method inductively generates a tree-structure model. The initial set of data is divided into subsets based on the values of the attribute that is recognised as the one with the strongest discriminating power in relation to the defined classes. The tree generates a node labelled with that attribute and it further splits into branches labelled with the values of the attribute. The measures used in the DT method can be based on the entropy of a given data set with respect to the classes (information gain and gain ratio) or the purity of the obtained data set relative to the target class (Gini index) (Breiman et al., 1984, Quinlan 1993).

In this paper, the DT method is applied which uses Gini index as a metric, known as CART (with categorical or numerical input attributes). The CART method can be used as a classification model when the target variable is categorical or as a regression model when the target variable is continuous. Since gender is a categorical variable with two possible values, a classification CART is applied. The generated DT describes classes using if-then rules that are derived based on paths leading from the roots to the leaves of the tree.

4. RESULTS AND DISCUSSIONS

Main findings

In order to answer the first research question, a classification decision tree was generated using the CART method (figure 1). The independent variables were the demographic factors and the dependent variable was the gender of the respondents surveyed.



The ratio between the amount of correctly classified data and the total amount of data represents the accuracy of the classification. The overall accuracy of the classification in this model is 66.87%

Reading the "if-then" rules from the roots towards the leaves, it can be seen that a number of the demographic factors interact to influence the gender of respondents. Rules whose confidence is over 55% and whose coverage is a minimum of about 5% can be considered significant.

Table 2 shows the significant 'if-then' rules derived from the model in figure 1. The derived rules confirm the existence of the interactive effect of demographic factors on the gender of respondents with satisfactory accuracy. For example, one rule corresponding to the first leaf, with an accuracy of 78.7%, argues that respondents whose occupations are IT jobs, self-employed, telecommunications or working at university or who are unemployed, and are of ages from 31 to 40 are men.

Table 2. Significant rules for user demographic profile by gender.

Leaf	Rule IF	THEN	Acc(%)	Cov(%)
1	*Occupation=(IT-related job, Self-employed, Telecommunication, Unemployed, University job) and Age=(31-35, 36-40)*	*Man*	*78.8*	*8.6*
2	*Occupation=(IT-related job, Self-employed, Telecommunication) and Age=(18-24, 25-30, 40-50, >50)*	*Man*	*62.1*	*5*
4	*Occupation=(Unemployed, University job) and Age=(18-24, 31-35, 36-40, 40-50)*	*Woman*	*63.1*	*5.7*
5	*Occupation=(Finance, Student) and Education=(IT diploma, Secondary school)*	*Man*	*63.0*	*5*
8	*Occupation=(Others) and Education=(Bachelor, Postgraduate, Student, Others) and Age=(18-24)*	*Woman*	*66.6*	*7.3*
9	*Occupation=(Finance, Student) and Education=(Bachelor, Postgraduate, Student, Others) and Age=(18-24, 25-30, 40-50)*	*Woman*	*68.4*	*52.7*

When generating the model, the individual demographic factors' importance in relation to the gender of the respondents was also calculated (table 3).

Table 3. The importance of demographic factors.

Demographic Factor	Importance
Occupation *Age* *Education*	*45* *34* *21*
Note: Rounded values are shown	

The results in table 2 show that gender differences in relation to the demographic profile of users are observed to the fullest extent in the following cases. Male respondents aged 31 to 40 are in IT-related job, self-employed or in telecommunication and university jobs (8.6% of the total number of respondents), while in the groups younger than 30 and over 40, there are no university workers (5%). The third group of surveyed male users work as employees in the finance sector with a degree in IT or are students (about 5% of respondents). It is noticeable that in each group of male users there are significant numbers of those with an IT degree or IT job, which may indicate that there are more men in this profession than women.

The majority of female respondents are employed in the field of finance with a bachelor or postgraduate degree, or are students (the last rule in table 1 covers 52.7% of the total sample). The second group of surveyed women consists of those who work in other areas, who belong to the youngest age group from 18 to 25 years of age and who hold a bachelor and post-graduate degree or are students (7.3% of the total sample). The third group consists of women aged under 50s who are university workers or unemployed (5.7% of the total sample). At first glance, the majority of internet users are women, which, actually, is the case because a larger number of questionnaires were filled out by women.

In terms of the impact of individual demographic factors on gender differences, table 3 shows that occupation has the greatest importance as a demographic factor on gender difference, which is also indicated by the above-stated fact that the majority of female internet users were students or highly educated university staff, while most of the surveyed men are in IT jobs and telecommunications. The next greatest impact is exerted by age, followed by education, which indicates that the impact of the level of education on the level of internet use is reducing over time, as well as the fact that regardless of the level of education, younger population use technologies much more than before.

In order to answer the second research question, the decision tree model in figure 2 was generated. The independent variables are the factors that define the user access profile and the dependent variable is the gender of the respondent. The overall accuracy of the classification for the model is 61.12%.

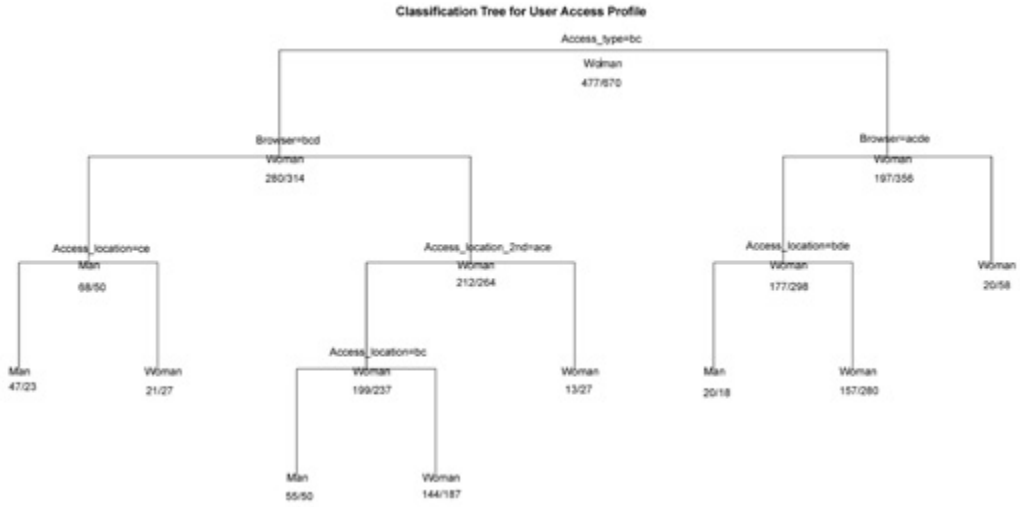


Table 4 summarises the significant rules derived from the generated model.

Table 4. Significant rules for the user access profile by gender.

Leaf	Rule IF	THEN	Acc(%)	Cov(%)
1	*Access_type=(Company, Foreign) and Browser=(MS Edge, Mozilla,Opera) and Access_location=(Home, Work)*	*Man*	*67.14*	*6.1*
2	*Access_type=(Company, Foreign) and Browser=(MS Edge, Mozilla,Opera) and Access_location=(Cell phone, Faculty, Others)*	*Woman*	*56.2*	*5*
4	*Access_type=(Company, Foreign) and Browser=(Chrome, Safari, Others) and Access_location=(Cell phone, Work, Others) and Access_location_2nd=(Cell phone, Home, Work)*	*Woman*	*56.5*	*28.8*
7	*Access_type=(Academic, Local, Others) and Browser=(Chrome, Mozilla, Opera, Others) and Access_location=(Cell phone, Home)*	*Woman*	*64.1*	*38.1*
8	*Access_type=(Academic, Local, Others) and Browser=(MS Edge, Safari)*	*Woman*	*74.3*	*6.8*

When generating the model, the individual access profile factors' importance in relation to gender was also calculated, and is presented in table 5.

Table 5. Access profile factors importance.

Access Profile Factor	Importance
Access_type	*32*
Access_location	*30*
Browser	*22*
Access_location_2nd	*15*
Note: Rounded values are shown	

Based on table 4, the significant gender differences are also reflected in the interactive impact of access type, access location and the browser used. Based on the rule that corresponds to leaf 4, a large number of female internet users (28.8% of the total sample) use a company or foreign account, prefer Chrome and Safari and access the internet from a mobile phone or work, and as the second most common access point they mention either a mobile phone or home. As for male internet users, they use mostly company or foreign accounts, MS Edge is also among their preferred browsers, and they most often access the internet either from home or work (the rule that corresponds to the 1st leaf). Therefore, it can be concluded that, in general, women are more likely to use local accounts, and men both company and foreign ones, and that women prefer Chrome while men also use the MS Edge browser. Regarding access location, women predominately access the internet from their mobile phones or from home, while for men, the predominant access points are home and work. Obviously, there is a larger number of female internet users who connect to the internet through the Android platform because they use their cell phones as the most frequent access location, and also prefer Chrome.

If we observe the impact of the individual factors (table 5), we can see that the internet is used mostly for communication purposes, which corresponds to the short forms of mediated communication that are so much a part of modern-day life.

The DT model, in figure 3, shows the gender differences in terms of the frequency of use and the daily usage time (the third research question). The overall accuracy of the classification for the model is 66.35%.

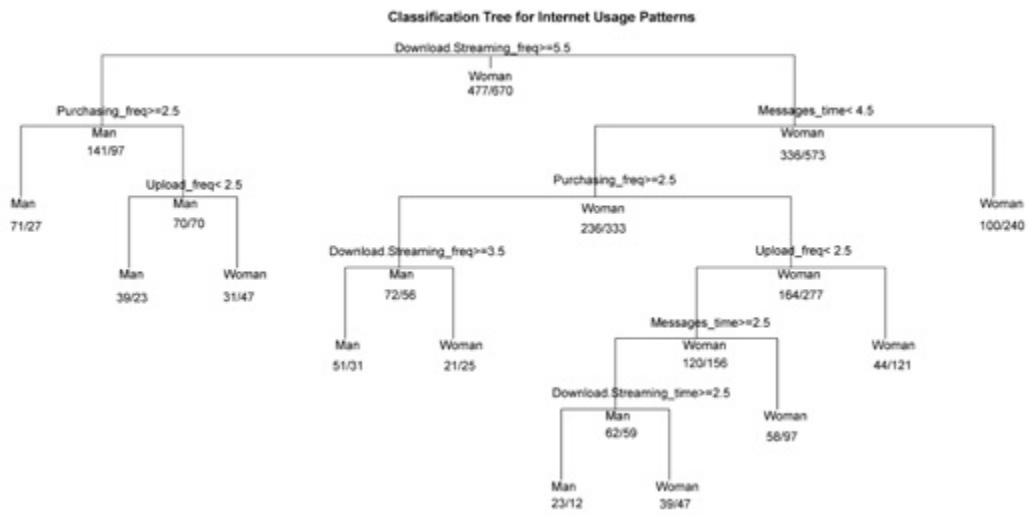


Table 6 summarises the significant rules derived from the generated model.

Table 6. Significant rules for internet usage patterns by gender.

Leaf	Rule IF	THEN	Acc(%)	Cov(%)
1	*High Download.Streaming_freq and High Purchasing_freq*	*Man*	*72.4*	*8.5*
2	*High Download.Streaming_freq and Low Purchasing_freq and Low Upload_freq*	*Man*	*62.9*	*5.4*
3	*High Download.Streaming_freq and Low Purchasing_freq and High Upload_freq*	*Woman*	*60.2*	*6.8*
4	*High Download.Streaming_freq and Low Messages_time and High Purchasing_freq*	*Man*	*62.2*	*7.1*
8	*Low Download.Streaming_freq and Low Messages_time and Low Purchasing_freq and Low Upload_freq*	*Woman*	*62.6*	*13.5*
9	*Low Download.Streaming_freq and Low Messages_time and Low Purchasing_freq and High Upload_freq*	*Woman*	*73.3*	*14.4*
10	*Low Download.Streaming_freq and High Messages_time*	*Woman*	*70.6*	*29.6*

When generating the model, the individual internet usage patterns factors' importance in relation to gender differences was also calculated and they are presented in table 7.

Table 7. Internet usage patterns factors importance

Internet Usage Patterns Factor	Importance
Download.Streaming_freq	*28*
Purchasing_freq	*18*
Upload_freq	*15*
Messages_time	*12*
Upload_time	*7*
Download.Streaming_time	*7*
Purchasing_time	*7*
Messages_freq	*4*
Browsing_freq	*1*
Browsing_time	*1*
Note: Rounded values are shown	

Men are the users who download and stream the most, and have a high frequency of online shopping activities, with an accuracy of 72.4% and coverage of 8.5%. Those users with high download and streaming frequencies, a low purchasing frequency and a low upload frequency are also mostly male. The third important pattern is that men as internet users have high download and streaming frequency, high purchasing frequency and low messages time frequency. In all three cases, the conclusion is that men are "task oriented", which follows earlier results (Teo and Lim 2000), but also more "agentic", which, again, is in line with Social Role Theory (Eagly 2001, Eagly et al. 2000, Kimbrough et al. 2013). There are also significant gender differences in download and streaming frequency because, unlike women, men had very pronounced activities in each significant rule of the DT model.

Four major patterns of internet use have been identified among female users. The first refers to those female users (about 7% of the total sample) with high download and streaming frequency, low purchasing frequency and high upload frequency (the rule for the 3rd leaf). Considering the fact that both download and upload activities are very pronounced, the authors conclude that this group of female users is very active on social networks.

The third usage pattern is a rule that corresponds to the 9th leaf and indicates that almost 15% of women still have low values of the same activities as the previous group, but also show a high upload frequency. This group most likely consists of users who upload a lot of pictures and other content onto the internet, most likely on social media platforms. Finally, the largest group, i.e. almost 30% of all respondents are women who have low download and streaming frequency and high message time. Even though some other activities might not be so pronounced, women predominantly pay more attention to communication, both by placing different content – images, texts, and messages on social networks (leading to high upload frequencies), as confirmed by earlier research (Muscanell and Guadagno 2012), and time spent on message activities (Guadagno et al. 2011, Kimbrough et al. 2013). Messaging as the predominant activity in women is changing because it is now a communication tool on social networks (Joiner et al. 2012, Ono and Zavodny 2016), and other platforms and email is no longer its primary channel, but nevertheless it remains something that distinguishes women from men in their online behaviour.

According to table 7, the differences between genders in internet use are predominantly influenced by download and streaming and purchasing frequencies, which are higher for men, as well as upload frequency and message time that are higher for women. Upload time, downloading and streaming time and purchasing time equally impact on the differences between genders in internet use, while browsing frequency and time undoubtedly have the lowest impact. It is interesting that message frequencies do not impact on the differences between genders in internet use greatly, while message time has a very high impact. It can be concluded that both genders frequently send messages, but that women spend much more time on this activity.

The authors conclude that with the development of the internet, attitude have also changed toward one of the basic tasks on the internet–browsing; it has become an almost standard activity that is not viewed as a factor of difference. The internet is constantly changing, precisely through the interaction of its users, creating new opportunities, redesigning existing ones and giving up the further development of those activities that are not being used.

In order to answer the fourth research question, the decision tree model in figure 4 was generated. The independent variables are the internet tasks and the dependent variable is the gender of the respondent. The overall accuracy of the classification for the model is 72.97%.

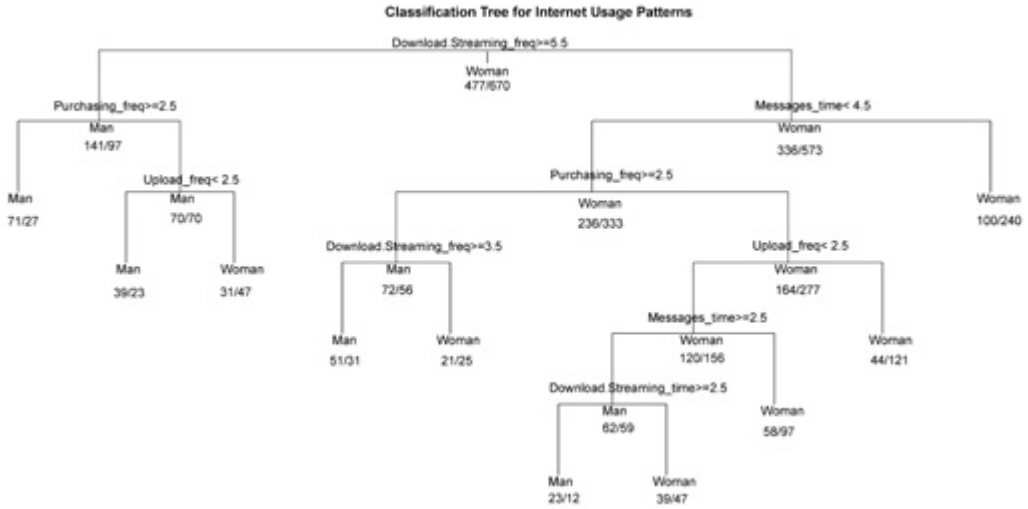


Table 8 summarises the significant rules derived from the generated model.

Table 8. Significant rules for internet tasks by gender.

Leaf	Rule IF	THEN	Acc(%)	Cov(%)
1	*High Betting and High Sport*	*Man*	*69.6*	*18.6*
4	*Low Betting and High Sport and Low Leisure and High Travel and Low Local_friends*	*Man*	*64.9*	*5*
5	*Low Betting and High Sport and Low Leisure and High Travel and High Local_friends*	*Woman*	*75*	*5*
6	*Low Betting and High Sport and High Leisure and High Gaming*	*Man*	*72.7*	*5*
8	*Low Betting and High Sport and High Leisure and Low Gaming and High Travel*	*Woman*	*69.6*	*30.9*
9	*Low Betting and Low Sport and Low Travel and High Politics*	*Man*	*81.2*	*5*
11	*Low Betting and Low Sport and High Travel*	*Woman*	*80.4*	*25.3*

When generating the model, the individual factors' importance in relation to gender differences was also calculated and they are presented in table 9.

Table 9. Internet tasks– the importance of individual factors

Internet Tasks Factor	Importance
Betting	*22*
Travel	*19*
Sport	*14*
Leisure	*9*
Gaming	*8*
Local_friends	*7*
Politics	*6*
Overseas_friends	*3*
Other_people_locally	*2*
Economics	*2*
Other_people_overseas	*2*
Technology	*1*
Online_payments	*1*
Business	*1*
Education	*1*
Apply_for_job	*1*
Note: Rounded values are shown	

Based on the rules in table 8, the following patterns of behaviour of male and female users on the internet can be observed. Men are the users who bet and access information in the field of sports the most, with a precision of 69.6% and coverage of 18.6%. Men are also, in a significant percentage, the users who access information in the field of sports and leisure the most; engage in gaming as an internet task and who do not bet on the internet (which is indicated by the rule for the 6th leaf). The third significant pattern (pointed to in the rule for the 9th leaf) recognised in male internet users is a high degree of access to information in the field of politics, with a low level of focus on information in the field of sports, travel or online betting. The conclusion can be drawn that there is a group of male users who see the internet as a valuable medium in a political sense, unlike women for whom access to information on politics does not feature in any significant internet usage pattern. The fourth pattern refers to male users for whom there is no great significance in communicating with local friends, who access information from the field of leisure, or bet online to a small extent, but have a high rate of access to information in the fields of sports and travel, which all indicates that male respondents access the internet with clearly defined preferences.

The second usage pattern is the rule that corresponds to the 11th leaf and which indicates that 25% of women have a low level of access to information on sports or bet online very little, but they do access information in the field of travel. The largest group of female internet users, which accounts for almost 31% of all respondents, is barely oriented towards betting or gaming, but exhibits a high level of searching for information in the field of sports, leisure and travel. In all usage patterns for women, low online betting values are shown, accompanied by a high level of access to information in the field of travel, which indicates that women behave differently on the internet compared to their male counterparts. Significant gender differences are also reflected in the interactive impact of online tasks – betting and access to information in the field of sports (the patterns indicated by the rules for the 1st and 11th leaves), which refer to almost 44% of all respondents.

The generated results are in accordance with results of previous studies and confirm gender differences in the way of accessing various tasks on the internet (Weiser 2000, 2001). In particular, men are more inclined to use the internet for so-called leisure activities – online gaming, sports or betting, while women perceive and use the internet for tasks providing them with information on travel and communication (Muscanell and Guadagno 2012, Zhou 2014). It is important to emphasize that the starting point for all these activities are mainly social networks, from where users continue to execute some of their internet tasks.

According to table 9, differences in internet use by gender are predominantly influenced by the online task involved, notably online betting, alongside tasks related to accessing information in the fields of travel and sport. Online betting is more present as an online task for men, as is access to information in the field of sports, while access to travel information is more pronounced for women. Communication with friends has the least impact on gender differences in internet use, alongside those tasks related to searching for information in the fields of economics, technology, business, education, online payments and job applications, so it can be concluded that these tasks are equally important for both genders.
Discussion

The obtained results show that the CART analysis is an appropriate method for analysing internet usage patterns and gender differences (with a model precision value of about 61% -73%).

The method automatically generated the importance of individual factors, as well as their interactive influence on gender-specific differences, requiring neither an analysis of the importance of the factors, nor an initial hypothesis about the influence.

A special contribution of this method is in the identification of the combinations of factors that reflect different patterns of gender-specific behaviour. For example, van Deursen and van Dijk (2014) found that men used the Internet for entertainment almost 50% more than women and for gaming 21% less than women. Using the CART method, we have identified that men most typically use the Internet for the combination of betting and sports and for the combination of entertainment, gaming and sports.

Using the CART method, we have identified that a high download frequency combined with a high purchasing frequency is characteristic for men, while online behaviour patterns characteristic for women are a low download frequency combined with high messaging time or a low download frequency and low messaging time combined with a high upload frequency.

It is obvious that the DT method enables the identifying of more detailed and semantically richer patterns of Internet user behaviour, which allows for a more profound study on the topic.

5. RESEARCH LIMITATIONS

This study has several limitations. First of all, the study was conducted for the population of Montenegro which is viewed as being comparatively small in relation to other European countries. The author's idea was to draw certain conclusions about internet usage patterns and gender differences in the context of a developing country, such as Montenegro, with all its characteristics and specificities.

The online survey methodology, with a self-report option, was used in the study, which could lead to different limitations. Potentially, all online surveys are at risk of a lack of diversity in the sample structure, that is, a question might arise as to whether the sample is appropriate in relation to the entire population. Another risk is also reflected in the potential excessive description of one's internet activities whereby users might boost/overestimate their internet habits, in order to fit into the social norms of internet usage patterns.

To address the limitations of the current study, future research should consider larger sample of internet users, in order to provide a better sample structure, the inclusion of the older population, and the possibility of making a regional analysis. In addition, a cross-country comparison may point out potential differences in the use of the internet by both genders at the international level. The authors believe that this research could be extended through an analysis of the motivation among users of both genders to do certain internet tasks. In addition, future research should consider the inclusion of additional factors, such as income, social status and marital status (van Dijk 2015) that would further expand the structure of the sample and allow for a deeper insight into user preferences and online behaviour.

6. CONCLUSION

This study has shown that there are significant gender differences in online behaviour and that they are reflected differently in the different demographic profiles of internet users, internet access profiles, internet usage patterns and internet tasks.

The study also shows that, besides the impact of individual factors on differences in online behaviour by gender, it is also possible to identify patterns of internet users' behaviour expressed by the interactive effect of several factors, which contributes to a deeper and more complex analysis of gender differences in the way they use the internet.

By analysing the overall sample, we come to the conclusion that most respondents use their mobile phone as the main access location, among which female respondents are dominant, while men choose home and work more often when accessing the internet. Female respondents generally use local accounts, while men use company and foreign accounts, and women prefer Google Chrome, while men also use the MS Edge browser. Likewise, women connect to the internet via the Android platform more and use the Chrome browser more.

While for both genders both messaging and browsing frequencies and the time spent on these activities are higher in relation to other forms of use, messaging time and frequency are higher for women, whereas browsing time and frequency are higher for men. Download and streaming stands out significantly as a task where we might speak of male respondents, while it is uploading that is particularly important for women.

Male respondents use the internet more for so-called leisure activities – online gaming, sport and betting, while women perceive and use the internet for tasks which provide them with information from the fields of travel, education and communication.

The study has theoretical, methodological and practical implications. In terms of theory, the study expands the empirical research on internet usage patterns and gender differences and complements the existing literature by examining the individual and interactive effects of the analysed factors using the DT method. It is peoneer research in that way. A study of the interactive impact of factors might thus open new directions in future research. In addition, it can also be used as a basis for the comparative analysis of any results obtained in countries in the region.

The applied CART DT method proves to be more efficient in determining internet usage behaviour patterns by gender when compared to the previously used factor analysis. Namely, this method automatically detects the importance of individual factors as well as their interactive impact on gender differences without any initial hypotheses. In addition, thanks to this method, it is not possible for an impact to remain unidentified because it was not assumed to exist.

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Original research paper

STUDENT READYNESS FOR ENTREPRENEURSHIP: CASE STUDY OF THE UNIVERSITY OF DONJA GORICA

STUDENT READYNESS FOR ENTREPRENEURSHIP: CASE STUDY OF THE UNIVERSITY OF DONJA GORICA

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ABSTRACT:

The research initiative came from two sources: the entrepreneurial concept of the University of Donja Gorica and the education of students on starting a business. The aim of the research was to examine the readiness of students for entrepreneurship. The sample included 394 students from the University of Donja Gorica, i.e. six faculties: FMEFB and PMB, FIST, Polytechnic, FPTBHE, FDM and Applied Psychology - FPRN. Data collection was conducted through an online questionnaire examining personal attitudes about entrepreneurship (PA), social norm (SN), perceived behaviour control (PBC) and entrepreneurial intent (EI). The results of the research showed that UDG students have a strong orientation towards entrepreneurship, and the data on the statistically significant connection between the examined factors and their influence on entrepreneurial intentions speaks in favour of that. The research concludes that students who take an entrepreneurship course as a part of their studies are more determined to enter entrepreneurial waters.

Key words: entrepreneurship, education, students, University of Donja Gorica, TPB

1. INTRODUCTION

The lives of young people who make up a significant part of Montenegro's population are challenging by themselves. Unfavourable economic and social position impairs the realization of personal (graduate from college, stable job, family and partnership values), psychological (need for independence and sense of responsibility) and social (community engagement) priorities. A study on young people in Montenegro pointed out the trend of "brain drain" precisely because of their unenviable position in the labour market and exclusion from the development trends of the environment in which young people live. These are the people who

believe that based on the level of education and competencies, they will be more valued outside the borders of the state, have a more successful career and adequate living conditions. On the other hand, those who want to stay rely on the possibility of employment in the public sector. However, the public sector, which is perceived as the most stable among young people, is not big enough to accept all those who aspire to it after graduation. Many turn to work in private sectors which, given the functioning of the market, do not meet all their needs. This paper discusses the question of whether young people in Montenegro perceive entrepreneurship as an opportunity to regulate employment or this opportunity can be created during the studies themselves.

Numerous analyses have shown that education can be a significant factor in strengthening students' entrepreneurial intent. At the outset, it is important to highlight the link between education and the labour market that abounds in parameters such as school-job transition, productivity, earnings, and gender differences in outcomes (Psacharopoulos, 1986, p. 409; Hinchliffe, 1987, p. 141, Furia et al, 2010, p. 1141; Ionescu, 2012, p. 133). Globalization and digitalization, the economy and its currents have influenced the fact that universities are being configured and have another epithet in their purpose - entrepreneurial. By studying entrepreneurship in their studies, young people acquire basic knowledge about the characteristics of the market, economic principles, financial investments... all in order to understand the way the economy works. Bringing the concept of entrepreneurship closer to the student population is done by combining it with disciplines such as economics, psychology, philosophy, sociology, design, architecture and others. In this way, the foundations are created for understanding the personality of the entrepreneur, responsibility and business ethics, social entrepreneurship, financial literacy. In this context, universities use entrepreneurship as a tool to shape the student into an individual who thinks differently and does not wait for opportunities, but creates them himself. These indicators suggest that universities must keep pace with the times and reject the traditional system. The focus is not only on students, but also on the ability of higher education institutions to cope with changes in the labour market and respond to societal challenges (Lauder & Mayhew, 2020, p. 8) by "producing intellectual, creative entrepreneurs" (Vukotić, 2013, p. 17). The final product of education is no longer a diploma but the training of students for market competition at the stadium of life (Ivanović and Radević, p. 83). A study conducted at the University of Donja Gorica is a proof that the transformation of a student into a global citizen of the world and the future is a consequence of the perception of "higher education institution as an innovator who stands out in an uncertain environment" (Liu and van der Sijde, 2021, pp. 2). The University of Donja Gorica is not a classic university that operates according to the formula knowledge = lectures + exercises. Guided by the information from the future, UDG has laid the foundation for a new model of study: S=z*i2 (Vukotić, 2013, p.7). The outcome of education is knowledge, but great attention is paid to skills, competences (language, communication, sports, ...) and values (behaviour, upbringing, character,...) that make up the intensity of life. The goal of education is to develop the abilities of the student (S) through the incision of knowledge (Z) and experience (i2). The model enables students to learn how to learn, ask questions, think critically and strengthen their personality. Student's knowledge is in the function of his being. That being is awakened, curious and eager for change. The quality of a student's knowledge largely determines the quality of his being as a person, his view of the future, while experience and work contribute to the intensity of life (Vukotić, 2020, p. 394). Teaching at the University of Donja Gorica is based on the philosophy of time, the philosophy of thinking and the philosophy of education in general. The new model of studying at the university represents an escape from indifference and mould, so studies at UDG are characterized as lifelike, transformative.

In a practical-entrepreneurial sense, the university encourages students to study. By studying, a person invests in himself, researches, collects information and the government, develops the initiative to place what he has created and tried on himself (Vukotić, 2016, p. 24). Therefore, the teaching process is based on the maxim that the student is a product of work, a product with which the university enters the market. Thus, a student at the University of Donja Gorica is a person driven by an inner (psychological) need to search for an idea and strive to shape it. In the process of raising funds for an idea, the student experiments, takes risks, but progresses and becomes independent. The end result is a new value that will enable growth and development in the educational, market, and most of all, spiritual sense. Growth and development bring many obstacles, so in this context the connection between education and entrepreneurship is clear: both are the processes of preparing a person for life success or failure (Vukotić, 2011, p. 337).

The University of Donja Gorica is an example of how the first entrepreneurial steps are acquired in an educational institution. In a wide range of offers, a program called Entrepreneurship, Management and Business (PMB) stands out. This is the application of studies intended for young people who have or want to start their own business, upgrade existing (family), create or improve entrepreneurial skills and specialize in the implementation of business plans and projects. The aim of the

study is to encourage students to realize their ideas, be independent employees and most importantly - drivers of change on a personal and social level. In this regard, the role of a young entrepreneur is complex for several reasons: economically it is creating opportunities, psychological development of personality, and spiritually - the courage to venture into the unknown. The last reason gave birth to what UDG is today - an entrepreneurial university dedicated to preparing students for the labour market. Thus, the entrepreneurial spirit can be strengthened in the Student Business Centre (SBC), an organization that operates at the university and actively promotes entrepreneurial values among young people. SBC members earn their tuition by working part-time and are regular participants in the Work & Travel program. Market preparation applies not only to current but also to future students. Namely, for 6 years it has been gathering high school students from all over Montenegro. Under the mentorship of associates from the university, high school students are given the opportunity to devise a solution to a given problem and construct a business plan.

The Stock Exchange of Entrepreneurial Ideas functions in a similar way, which can be briefly described as a meeting place of supply and demand, with the university as an intermediary. The Stock Exchange opens the possibility of cooperation with successful companies operating on the territory of Montenegro through the auction process. In this way, young people are encouraged to start their own companies and actually realize their ideas using the money invested. Since 2011, the School of Entrepreneurship and Innovation for Youth has been active - a place where contacts are made between young people and successful individuals: business owners, representatives of institutions, athletes and others.

What makes the University of Donja Gorica stand out is the desire to create something new and different. Thus, with the opening of the "Entrepreneurial Nest" in 2019, the scale of innovations was raised by a step higher. "Entrepreneurial Nest" is defined as a laboratory for the production of ideas, a practical place to start a star-up. It creates new thoughts, establishes a more creative view of the world and strengthens the research drive. This innovation is perceived precisely through the name itself: the nest as a starting point from which students are ready to spread their wings and make their first entrepreneurial flight. From the university's point of view, the nest is the result of striving to change the character of teaching, research and practice, all with the aim of awakening student talent and developing the ability to work in a team imbued with tolerance and solidarity (Vukotić, 2019, p. 40). The nest is big enough to accommodate all those young people who want change, progress and their own shaping. It is a place where students are given the opportunity to learn from each other, but also from those seniors who are willing to selflessly share their experience. Thus, many guest appearances of prominent personalities from different fields are organized in a specially designed space, all with the aim of exchanging thoughts and opportunities to develop the germ of a new idea.

The descriptions of these activities, which can be freely called innovations, are a proof of the university's commitment. Although UDG operates according to the formula (S=z*i2) whose essence is a student's being, it seems that the university itself is a creation that behaves in a specific way, constantly setting challenges in front of itself and looking for ways to overcome them as efficiently and creatively as possible. Then it is not surprising that many students consider the university they study to be their entrepreneurial role model.

2. LITERATURE OVERVIEW

Entrepreneurship is not easy to define. Theoretically, it is the economics of development (Hessels and Naude, 2019, p. 389), a natural phenomenon in business (Diandra and Azmy, 2020, p. 235), a creative endeavour in a new business (Hebert and Link, 1989, pp. 39-49). Metaphorically, entrepreneurship is an idea, a challenge, courage, responsibility, risk, innovation, vision, in general "the energy of creation and unrest with circumstances" (Vukotić, 2006, p. 106). The secret of entrepreneurship lies in its multiplicity. Entrepreneurship does not depend on gender, age or education. The ability to be an entrepreneur can be innate or learned. Entrepreneurship is a rise and fall, a job, but also a pleasure. In short, entrepreneurship is interpreted as a process that consists of three important elements: entrepreneur, chance and resources (Paunović, 2012, p. 22). An entrepreneur is a person who, analysing the market, saw an opportunity and used it to carry out an endeavour which, with the engagement of material and human capital, results in monetary gain. In this paper, the theoretical concept of entrepreneurship is conceived as "3E": economic, emotional and educational. It is widely known economically and is understood as a business that, in addition to financial investment, risk assessment brings a certain profit. Emotional is related to the personality of the entrepreneur. In this context, the internal determinants that make up the psychological profile of entrepreneurs are passion for entrepreneurship (Vukotić, 2018, p. 9) and emotional intelligence (Maksimović, 2018, p. 308). The subject of this paper is related to the connection between entrepreneurship and education, more precisely the role of universities in preparing students for entrepreneurship.

The theoretical basis of this research is Icek Ajzen's Theory of Planned Behaviour (TPB) (1991, p. 179). As the name suggests, it seeks to explain human behaviour in specific situations, that is, the nature of factors unique to the behaviour being observed. Ajzen's theory is characterized by several elements: behavioural attitudes, perceived control of behaviour, and subjective norms. Attitudes refer to the assessment of behaviour itself, which can be positive or negative, and perceived control of behaviour to the assessment of achievement. Subjective norm is defined as a decision on (non) manifestation of behaviour. All three forms are used in assessing the realization of an individual's intention to manifest certain behaviours. The stronger the intention, the more successful the outcome. Intention refers to a degree of commitment to a particular goal. The role of belief is also important in human behaviour. There are three types: behavioural, related to the expression of attitudes, normative, related to subjective norms, and control, related to the control of the perception of a behaviour. The main feature of TPB is its consistency and usefulness in the analysis of social behaviour. On the other hand, criticism is not lacking: the advantage of raids, and the neglect of the unconscious, the expression of emotions outside certain affective events, as well as the inability to explain cognition and future behaviour based on the effects of a behaviour (Sniehotta et al, 2014, p. 2).

The theory is recognizable by its wide application. In the context of education, there is a lot of research done on the student population. Thus, with the help of TPB we can assess the intention of students to seek academic support (Bornschlegl et al, 2021, p. 1), expand knowledge (Negara et al, 2021, p. 1053), attend classes (Skoglund et al, 2020, p. 572), leave studies (Dewberry and Jackson, 2018, p. 100; Cantt and Wated, 2011, p. 13), choose a career (Mohlis et al, 2022, p. 1; Aun and Chee, 2020, p. 363; Tegova, 2010, p. 1), engage in recreational sports activities (Chuan et al, 2014, p. 172), use social media (Cameron et al, 2012, p. 1) and perform cyberbullying (Jafarkarimi et al, 2017, p. 1), engage in volunteerism (Okun and Sloane, 2002, p. 243), have leisure activities (Ajzen and Driver, 1992, p. 207).

3. METHODOLOGY OF THE RESEARCH

The research goal of this paper is to examine the readiness of students for entrepreneurship. The tasks of the research are related to the assessment of whether the students of the University of Donja Gorica show initiative to be entrepreneurs and the identification of factors that influence their intention to engage in entrepreneurship as a primary occupation.

In accordance with the above parameters, the following hypotheses were formulated:

1. There is a strong intention of the students of the University of Donja Gorica to engage in entrepreneurship.
2. Students who attend an entrepreneurship course have a stronger entrepreneurial intent than students who do not.
3. There is an expectation that personal attitude, social norm and perceived control of behaviour have a positive impact on entrepreneurial intentions among undergraduate students at the University of Donja Gorica.

The research was conducted online, via a link to a questionnaire that was forwarded to students from the official e-mail of the university, which provided information on the topic and purpose of the research. The research was conducted on a sample of 394 undergraduate students at the University of Donja Gorica, more precisely six selected faculties: Faculty of International Economics, Finance and Business - FMEFB and Entrepreneurship, Management and Business - PMB, Faculty of Information Systems and Technologies - FIST, Polytechnic, Faculty for Food Technology, Food Safety and Ecology - FPTBHE, Faculty of Design and Multimedia - FDM and Faculty of Applied Sciences - FPRN, from which the study program Applied Psychology was separated. For research purposes, the questionnaire was provided by authors who conducted research at a university in Saudi Arabia (Iqbal et al, 2012, pp. 117). The questionnaire consisted of a seven-point Likert-type scale. The responses ranged from 1 (complete disagreement) to 7 (complete disagreement). The first part of the questionnaire included demographic information: gender, age and college. The rest of the instrument consisted of four categories with different numbers of items: personal attitude towards entrepreneurship (five items), social norm (three items) and perceived control of behaviour and entrepreneurial intent with six items.

Personal Attitude (PA) refers to a student's perception of entrepreneurship, the opportunity to start a business if there are resources and opportunities to grow it into a career. The social norm (SN) is the opinion of the close environment on starting a business, more precisely the influence that family, friends and colleagues can have on students and motivate them to become entrepreneurs after graduation. Perceived Behaviour Control (PBC) includes entrepreneurial capacity, i.e. knowledge and readiness to establish, invest and develop a business. Entrepreneurial Intent (EI) is students' initiative, their determination to be entrepreneurs and thus secure their future.

Data were processed using the SPSS statistical program. The following procedures were used during the processing: descriptive statistics, regression analysis and correlation analysis.

4. RESULTS AND DISCUSSIONS

4.1 Descriptive analysis: General Demographic

Out of the 394 respondents, 66.2% are female and 33.8% are male. Most of the surveyed students were students of the Faculty of International Economics, Finance and Business, Entrepreneurship and Management (23.1%), the Faculty of Applied Sciences - Study Program Applied Psychology (22.3%), and the rest of the sample were students of other faculties such as Information Technology, Humanities Study, Food Technology, Design and Multimedia, Polytechnics and Law.

Table 1. Demographic factors

GENDER	FREQUENCIES	PERCENTAGE
MALE	133	33.8%
WOMAN	261	66.2%

FACULTIES	FREQUENCIES	PERCENTAGE
FPRN	88	22.3%
PMB I FMEFB	91	23.1%
FIST	34	8.6%
HS	36	9.1%
FPTBHE	24	6.1%
FDM	59	15.0%
POLITEHNIKA	37	9.4%
FPN	25	6.3%

The target group are undergraduate students at the University of Donja Gorica. The average age of the respondents was 19.85 (SD = .912), where the youngest respondent was 18 years old and the oldest 21.

4.2 Descriptive analysis of Main Variables

When it comes to students' personal attitudes towards entrepreneurship, the overall average on the scale is 5.77 (SD = 1,257), which means that students have a moderately strong positive personal attitude towards entrepreneurship. The analysis of the degree of agreement with the items from the above scale, found that students mostly agree with the statement: "If I had the opportunity and resources, I would like to start my own company/company", which indicates that the surveyed students have the will to start their own company/company, if there are possibilities for that. The lowest degree of agreement was measured with the following statement: "Among the various options, I would rather be an entrepreneur", which means that among the surveyed students there are those for whom entrepreneurship is not in the foreground.

Table 2. Personal Attitude, Social Norms, Perceived Behavioral Control, Entrepreneurial intention (Total averages)

SCALE	M	SD
PA	5.77	1.257
SN	5.97	1.260
PBC	4.65	1.381
EI	5.28	1.516

Social norms refer to the source of influence and motivation behind students' attitudes towards entrepreneurship. The overall mean value of student responses on this scale is positive (M = 5.93, SD = 1,260), which means that friends, family or colleagues can encourage students to become entrepreneurs after graduation. Students were relatively more encouraged by their parents, family (M = 6.11, SD = 1,457) and friends (M = 6.09, SD = 1,349), and slightly less than their colleagues (M = 5.69, SD = 1.56). Students may be more influenced by their parents' opinions because they rely on them for financial support given the Montenegrin culture and family structure.

For perceived behaviour control, the overall average on the scale is 4.65 (SD = 1,381), which means that students have a moderately positive personal attitude towards entrepreneurship. When it comes to the degree of agreement with the items, the highest degree is expressed in the following statement: "If I tried to start a company, I would have a great chance to succeed", which indicates that students of the University of Donja Gorica are mostly confident in their abilities and skills which

would enable them to operate a business successfully in the future. The students agreed least with the statement: "It would be easy for me to start a company and run it", which indicates that the surveyed students are aware that every start is difficult and challenging, especially when it comes to starting your own company.

The average response on the scale aimed at measuring entrepreneurial intentions among undergraduate students was 5.28 (SD = 1,516), which means that students have moderately strong entrepreneurial intentions, thus proving the first hypothesis of this research. The statement with which the highest degree of agreement was expressed is: "I have a strong intention to start a company one day", so it can be concluded that the surveyed students of the University of Donja Gorica have a desire to start their own company and business. The lowest degree of agreement was related to the statement: "I am ready to do anything to become an entrepreneur", so we can conclude that, as with the attitude towards entrepreneurship, there are students who have different priorities when it comes to employment and resolving their status.

Table 3. Average entrepreneurial intentions by faculties

SCALE	M	SD
FPRN	5.17	1.66
PMB	5.78	1.24
HS	4.59	1.65
FIST	5.59	1.72
FMEFB	5.20	1.58
FDM	5.12	1.55
PT	5.59	1.55
FPN	5.17	1.66

The second hypothesis of this research was that "Students who take an entrepreneurship course have a stronger entrepreneurial intention than students who do not." Based on the results obtained from the table 3., we can see the average answers of students to the questions from the scale related to the assessment of entrepreneurial intentions divided by the faculties (EI). Based on the obtained results, we can conclude that students who attend entrepreneurship courses as part of their study programs have a stronger entrepreneurial intention than students who do not. We can see that the students of PMB, FIST, FMEFB, etc. have a higher degree of entrepreneurial intent than, for example, the students of HS, FPRN, FDM, FPN. Thus, we can say that the second hypothesis of this paper has been confirmed.

4.3 Regression Analysis: Hypotheses Testing

4.3.1 Entrepreneurial Intention and its antecedents

In this research, Hypothesis 1 (H1) is defined as follows: there is a positive influence of personal attitude, social norms and perceived control of behaviour on entrepreneurial intentions among undergraduate students at the University of Donja Gorica. H1 testing was performed using multiple regression. The results show that entrepreneurial intent (EI) is a function of social norms (SN), personal attitude (PA) and perceived behavioural control (PBC).

Table 4. Regression of EI and its Antecedents

MODEL	BETA	SIG.
PA	.626	.000
SN	-.056	.208
PBC	-.056	.000
control		

Dependent variable: Entrepreneurial Intention, Adjusted R. Square=0.622, F= 238.611, P < 0.00.

The total regression is very significant and the assumed independent variables (personal attitude, social norms, perceived control of behaviour) explain 62.2% of the variations in entrepreneurial intentions. Table 3, above, shows that there is a significant relationship between two dimensions: personal attitude and perceived control of behaviour with a dependent variable, entrepreneurial intent, while the social norm is not significantly related to entrepreneurial intentions (sig. =. 208). Therefore, personal attitude (PA) and perceived control of behaviour (PBC) have a positive impact on entrepreneurial intentions (EI). In addition, the regression found that all dimensions have an impact on the level of entrepreneurial intentions. So H1 is supported. The same results were confirmed by the authors who examined the entrepreneurial intentions of Saudi private university students, from whom the instrument used in this research was taken (Iqbal et al, 2012, p. 125) as well as by the students of the University of Malaysia (Noor and Malek, 2021, p. 211).

4.4 Correlation Analyses: Hypotheses Testing

Table 4 presents the correlations of the variables of this research. The obtained correlations confirm that all tested variables have an impact on students' intentions to engage in entrepreneurship.

Table 5. Correlation between Variables

CORRELATION	EI	PA	SN	PBC
EI	1	.627**	.332**	.674**
PA	.627**	1	.445**	.456**
SN	.332**	.445**	1	.264**
PBC	.674**	.465**	.264**	1

***. Correlation is significant at 0.01 level (2-tailed).*

The exception is the weaker link between social norms (SN) and perceived behavioural control (PBC). It is most likely that students believe that despite the support of family and peers, they can make decisions about their professional future on their own. The consistency of these results has been observed in several previous studies. (Krueger et al. 2000, p. 423; Armitage and Conner, 2001, pp. 488; Fayolle and Lassas-Clerc, 2006, p. 715; Iqbal et al, 2012; p. 126).

5. RESEARCH LIMITATION

The limitations of this research relate to the sample, namely the lower percentage of males and the number of students per faculty. In order to have more credible results, the number of students within each faculty must be more proportionate in order to analyse the real difference between students coming from different fields. The same goes for gender. On the other hand, the recommendation for further research is to expand the sample, i.e. to include students from other fields and to analyse the remaining two universities in Montenegro in order to gain a more complete picture of the role of higher education institutions in creating an entrepreneurial atmosphere.

6. CONCLUSION

The paper gives an overview of the needs that young people have and the opportunity to meet those same needs by entering entrepreneurial waters. Therefore, the research goal of this paper was to examine the readiness of students for entrepreneurship. Students had the opportunity to express their personal views on the attractiveness of entrepreneurship as a profession and the opportunity to open a private company, the role of the close environment and the impact on the decision to start a business. Entrepreneurial capacity was also examined, i.e., knowledge, creation and development of conditions for entrepreneurship.

Based on the correlation analysis, we conclude that the factors: personal attitude (PA), social norm (SN) and perceived behaviour control (PBC) are strongly related and have a direct impact on the willingness of students of the University of Donja Gorica to engage in jobs in which they can show entrepreneurial spirit.

The intention of the authors of this paper was to draw attention to young people as individuals who strive for independence and create opportunities for a better future. These opportunities can be created in the studies themselves. The connection between education and the labour market is evident. One of the ways in which education can contribute to job creation is the study of entrepreneurship at universities. An example of this is the University of Donja Gorica, which has the epithet of an entrepreneurial-research university.

Young people identify themselves as important drivers of change. This research sought to point out entrepreneurship as a way to meet life's needs. In that case, the university is the first channel of support that encourages young people to face challenges in the labour market through the development of entrepreneurial skills.

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4.

Review paper

CORPORATE GOVERNANCE FROM PROPERTY RIGHTS PERSPECTIVE

CORPORATE GOVERNANCE FROM PROPERTY RIGHTS PERSPECTIVE

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ABSTRACT:

The paper analyzes the phenomenon of corporate governance from theoretical point of view. The goal of the author was to research the relation between property rights and corporate governance. The author tries to answer the question whether corporate governance problems arise in society with absolute and exclusive ownership. The paper suggests that the new regulations usually introduce new limits to owners and investors preventing them from using their resources on the way they want, because it additionally distorts incentive mechanisms in corporation and reduces efficiency. The essence of the solution lies in the change of institutional arrangements in a society, which is a very complex process depending on the existing network of formal and informal institutions in a society. The role of the state and regulators should not be to impose new regulation and protect interests of some social groups on expense of others, but to protect property and contracts. Institutional setting in which the role of state is to enable private owners to freely use individual property rights through protection of property and contracts, is a precondition for efficient corporate governance.

Keywords: property rights, corporate governance, principal-agent, regulation, individual, state

1. INTRODUCTION

It has been repeatedly pointed out in both legal and economic literature that any action taken by the state, regardless of the wider benefits or damages it causes to society as a whole, creates winners and losers in the market. This result is so inevitable that it is called the iron law of state politics. The effort to replace market mechanisms with well-known consequences with political and regulatory mechanisms with very vague consequences brings many troubles. One of the underlying problems lies precisely in the implicit disregard for the fact that the influence of the state is essential to the success of businesses.

How does the state make its impact on business? What is obvious is that the state primarily through the adoption of regulations establish certain restrictions on market behaviour, i.e. certain "rules of the game". What's less obvious is: How does regulation be established and affected?

The theoretical background of this paper lies in the property rights theory, which considers property rights as the basic economic institution. Thus in the first part of the paper the author gives brief overview of the property rights theory principles. In the second part of the paper the author discusses the role of business in modern society, putting emphasis on the goal of businesses, in order to emphasize the arguments against many mainstream authors who consider that the primary goal of business doesn't have to be the profit. The third part of the paper focuses on the principal-agent relation from the perspective of property rights theory dealing with some specific issues of corporate governance. Concluding remarks give an overview of the results of analysis and open issues for further research.

2. THE CONCEPT OF PROPERTY RIGHTS

Ownership is a basic economic institution that determines the nature and character of many relationships in society. This paper starts from the Locke's assumption that property (Locke, London: A. Millar et al., 1764), or the right to property is one of the natural rights of a human individual.

One of the founders of the Property Rights School, Professor Steve Pejovich points out that it is wrong to separate human rights from property rights. The right of a person to talk or write about something is a property right, as it regulates relation of an individual to other people (Pejovich, 1990).

Alchian and Demsetz treat ownership over resource, not as resource itself, but as the bundle or a portion of rights to use the resource (Alchian & Demsetz, 1973). Pejovich says that the property right belongs to the individual. The property right over something does not regulate the relationship between an individual who is an owner and that specific objects that he owns, but regulates the relationship of the individual who owns a given object and all the other people in relation to the right to use that particular object. (Furubotn & Pejovich, 1972).

Accordingly, institution of ownership regulates the norms of behavior in relation to the scarce economic goods which must be respected by all individuals in their mutual relations.

The history of civilization is influenced by the changes in the dominant form of ownership, as well as basic social institutions. Changes of dominant forms of ownership affect both the character of the economic system, and the nature of many relationships in the society and a way of regulating these relations. Changes in forms of ownership affect the changes of position and the role of individuals and groups in a society. Consequently, changes in forms of ownership always occur along with comprehensive changes in the social system. Societies where the private property is dominant, development of the market is immanent, as opposed to societies where collective property dominates, in which the command or planned economy is developed (Vukotic, 1993).

3. CORPORATE GOVERNANCE

The issue of corporate governance in economic theory was introduced by Berle and Means, 1932, who believed that the foundation of modern corporations is based on the separation of ownership from the company management. Corporations issue a large number of shares and sell them to raise capital in order to finance business activities, and meet the need for capital. Shareholder has the right to attend general meeting and vote – to be involved in managing the company; is entitled to a portion of the company profit, i.e. dividends; the right to transfer shareholder's right – sell the share; and is entitled to the part of bankruptcy estate. In cases when an owner transfers management rights to a third party, the phenomenon of corporate governance occurs (Berle & Means, 1932). The essence of the phenomenon of corporate management may be found in the answer to the question why investors (owners) entrusted their own money to someone (usually a professional manager or entrepreneur) in the management, hoping that the value of their shares in the

company will increase. Analysis of the phenomenon of corporate governance given in this paper is based on the assumptions that owners use their resources in order to make profits.

Adam Smith (1776) did not believe that companies can be managed in the best interest of owners. He wrote about joint-stock companies: "The directors of such companies, however, being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own.... Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company." (Smith, 1843).

This is well known agency problem defined by the relationship of two economic actors: the principal (in corporate governance it is the investor - shareholder) which transfers (delegate) certain rights he is entitled to as the owner to the agent – managers. This relation involves mechanisms that provide that managers (agents) act in the best interests of shareholders (principals). In general, agency problem includes any contractual relationship which includes an obligation on the one hand (agent) to act on behalf of the other party (principal) and mechanisms to ensure that the agent acts in the interests of the principal.

If investors are able to successfully solve the agency problem, they will invest their money in corporations or companies. Looking at the level of investments in the corporate sector, we can say that this agency problem is being successfully solved, i.e. that more or less effective mechanisms ensure that managers are working for the benefit of investors.

How can a principal control the work of the agent? How can a principal ensure that the activities of the agent are directed towards the realization of the principal's best interests? There are two possible solutions. First, permanent and comprehensive control of the principal over the work of the agent, and/or, precise and comprehensive contract between the principal and the agent.

In the first case - a permanent and pervasive control, the principal would be in possession of all the information available to the agent. In other words, there would be absolute informational symmetry, so that any activity contrary to the interests of the principal agent was observed, and the principal would behave accordingly. However, this is virtually impossible because in the principal-agent relationship always exists some information asymmetry due to the objective inability of the principal to exercise comprehensive control over the work of the agent. Agent or manager has more knowledge about things that are relevant for decision making. In practice, the manager is hired as a professional, trained to run the company. In addition to that, he is much more involved in the day-to-day company operations, unlike an owner – shareholder, who is often even physically absent or distant from the company. This necessarily brings us to the information asymmetry.

The contract which is regulating the principal-agent relation, i.e. management contract between the owner-shareholder and management cannot include all possible future situations arising from this relation. This is very simple consequence of the fact that uncertainty is unavoidable feature of the real economic life. The risk of this unavoidable uncertainty is borne by the investor or owner who has invested their money - capital in the company.

However, the question is whether and in what circumstances it is possible to define contractual condition which will prevent problems caused by principal-agent problem, i.e. information asymmetry between owner – shareholder and managers? The analysis in the next part of this paper will try to answer this question, however we will briefly mention several important concepts in corporate governance. The second half of the last century is characterized by the tendency of much of the public, to promote the concept of "corporate social responsibility" or non-profit business goals. In socialist economies, companies had explicit non-profit goals, the most common social objectives were growth of salaries, job security, the ensuring of workers' rights, and so on. In capitalist countries, the non-profit (social or political) objectives were justified by the concept of the welfare state, and came down to the same: to improve the position of workers, to do something for the local community, protect the environment, help the sick and poor...

This paper starts from an assumption that the goal of any business is and must be a profit, because, as Professor Veselin Vukotic said: "direct impetus to economic progress comes from profit-oriented activities and initiatives undertaken by business enterprises operating in the competitive environment of the market economy." (Vukotic, 2004) The inevitable result of the non-profit oriented companies is inferior economic efficiency, and the collapse of socialist countries is the best proof of this.

When it comes to corporate governance, the tendency to impose a non-profit business objective promoted under the concept of so-called corporate social responsibility,

which is increasingly imposing to companies in the form of regulation. With this regulation the state is trying to transfer responsibility for social policy to the business sector.

The mainstream understanding of "social responsibility of corporations" essentially represents a return to the practice of socialism, where the social function of the company was formally and essentially placed above economic function. In other words, the company has been the long arm of the state whose goal and the primary role is to solve all the issues of their employees and issues of local communities - municipalities. Companies virtually represented parts of the ministry for social welfare and had up to 20-30% of the value of assets that had nothing to do with the business of the company (e.g. apartments for employees, hotels, resorts, supporting facilities, large and luxurious building, cars, monuments...). How did such companies get the money to build this – was it from the market and bottom-up driven, or from the state? This brought us to the inevitable collapse.

The concept of "corporate social responsibility" is close to the concept of "stakeholders", that is, to the question which interest groups should play an important role in corporate governance. Do only owners – shareholders belong to this group, or also creditors, employees, suppliers, dealers, local, national and international institutions? Today, within theory of corporate governance, numerous authors assume that the company is both the actor in social and political reality and as such include and must respect the interests of all these groups. In this paper, we argue that making profits must remain the main objective of corporation and any other form of business and there is one and only "interest group" that has profit as its essential goal – owners.

Modern corporations are characterized by wide dispersion of ownership, and a large number of small shareholders and many claim that the agency problem that occurs as a result of the separation of ownership from management of corporation is further complicated due to the great dispersion of ownership, and a remarkable number of small shareholders. That is the reason to impose new regulation for protection of minority shareholders.

The owners of a few shares of the company would have high costs of control of the management, i.e. the transaction cost of the control, compared to their stake in the company. At the same time their ability to influence decision making in the corporation is - in proportion to their share – very small. It is therefore natural position of "small" shareholders to be free riders - to expect a positive impact from other major owners. Positive impact here means managing the company in the economically efficient manner – this is bringing costless benefits to a small owner without investing additional efforts. Due to the dispersion of ownership, there is a tendency that all "small shareholders" become passive and waiting "the job to be done" by someone else. This, however, cannot endanger the position of small shareholders at well-functioning and developed capital market, as they can sell their shares on the market, whenever they are not satisfied with the quality of decision making in the company.

4. HOW CAN WE SOLVE PRINCIPAL-AGENT PROBLEM IN CORPORATION?

All questions opened through this paper brings us to essential issue if principal-agent relation be considered as the "problem" in corporate governance. In other words, are there any efficient mechanisms to overcome this problem?

The modality of solving problems caused by principal-agent relation between shareholders and management in corporation directly influence organizational form of corporation. Different types of corporate structures are created, depending of the mechanism used by shareholders/investors to control managers. Usually, it determines national type of corporate structures in different countries shaped through relevant regulation.

The issue of corporate governance comes down to the question of control over the use of company resources. The use of resources in an economy is directly dependent on the dominant form of ownership and institutional mechanisms which resolve the issue of property rights. In other words, the analysis of various corporate governance system is based on the analysis of the property rights systems as one of the basic institutions of society.

The new institutional economics provides suitable framework for the analysis of corporate governance from this aspect, which by property means the corpus of right to control (the owner can hold, use or dispose the property) the physical as well as human capital. Representatives of the new institutional economics define property rights as an institution (a set of rules and mechanisms of use) that allows people to form expectations regarding the control over the use of the property.

Although this definition differs greatly from what Berle and Means had in mind when they wrote on the separation of ownership (which is in the hands of shareholders) of corporate control (which is in the hands of managers), it is very useful for further analysis of the relation between corporate governance and dominant form of property in the society.

The institution of property rights does not only consists of legal norms and administrative arrangements as formal rules that shape the country, but also of the system of informal rules and social norms. These rules, although they are not formally regulated by the state, sometimes are much more efficient in determining the behavior of individuals in the economic system of a country. These include culture, moral norms, customs, traditions, etc. Informal rules are spontaneously developed in the social system as a result of repeated interactions between individual private actors (Pejovich, 2003).

As already mentioned in the first part of the paper, the dominant form of property rights and the way in which these rights are regulated in a society are a key factor in the economic organization of society. This effect is manifested through the management of companies, so the dominant form of ownership, and general ownership arrangement in a society, affects the formation of the system of corporate governance. Thus, the institutional arrangement of the property determines which type of companies will be able to survive and operate in a particular economic environment. Companies, as well as other forms of social organizations, are formed in response to the incentives and transaction costs in a given institutional framework. As a consequence, in economic system without strong protection of private property, corporations with a large number of small private shareholders will not emerge.

The corporation, as well as all other economic agents, does not work in a vacuum. Opposite to that, it is formed and evolutionary shaped under the influence of changing conditions in the economic environment. That is the reason why economic, historical and political developments in certain area strongly influence the system of corporate governance. The way in which the issue of management of some resources was resolved in the past, dominantly influence current behavior of economic actors, including corporate shareholders, management and employees.

When we analyze differences in the systems of corporate governance between different countries and over different periods of time, we come to the two very important questions. One is obviously the question whether the control over the use of scarce resources is in the hands of private entities or political stakeholders – i.e. the state? Other important question is related to mechanisms available to control the use of property – whether there is constitutional and legal protection of private property rights, how an owner can exercise property rights in practice, whether there are some informal mechanisms of protecting property rights available to the owner, prior to the use of legal remedies.

4.1. State corporation and governance

Bearing in mind these two important issues, we will first analyze the "agency problem" and the way it is being solved in state corporations, completely managed by political actors, no matter whether the state is 100% owner or has been controlling share in the companies.

The main characteristic of state property is, as its name indicates, that all sticks from the bundle of property rights are entitled to the state or some state body. In this case, all decisions on the use of resources is made by the state officials who do not bear the full responsibility for the decisions taken, because their individual costs and rewards do not directly depend on the consequences of such decisions. The costs of such decision making are paid by taxpayers. The benefits, if any, does not completely belong to the decision-makers. Instead of symmetry, there is imbalance of punishment and reward, i.e. costs and benefits, which make the principle of accountability nonfunctioning. This practically means that there is no responsibility for the decisions and actions.

In the previous century the state property was introduced in the former socialist countries for ideological reasons. Today, its existence is defended by arguments such as: keeping the strategic sectors of the economy in state hands - the politicians, the provision of goods and services that private capital are not interested in, solving social problems, unemployment, income redistribution that will enable supply to vulnerable segments of the population at prices lower than the market, and so on. The consequences of their existence are the same in both cases.

In theory, state ownership is transferable, but practically in normal circumstances, the transfer of property rights from the state to private owner, does not occur often. Decision makers appointed by the political party in power do not bear the full consequences of their decisions. If you add practical non-transferability of

property rights in case of state corporations, it means that managers do not take into account the present and future consequences of the decisions they are making. Non-transferability of property rights in state corporations practically prevents the capitalization of future returns from the use of resources.

As the consequence, there is not development of capital markets that would provide price signals for the efficient corporate governance in economies where the state corporations prevail. Taxpayers are the ones who ultimately bear all costs of business operations of state corporations, and they cannot control their work due to the high cost of control. Transaction costs of such control would be very high compared to the benefits that they could possibly get if the corporation would have been managed better. More efficient management of state corporations would result in higher profits, generate more budget revenues and consequently reduce the tax burden on individual taxpayers. The tax burden would be reduced for the amount of increased profit divided by the total number of taxpayers. For an individual taxpayer it is extremely small amount, compared to the potential costs of control, so it does not give an incentive big enough in order to start control of state corporations. This open the ground for the managers of state corporations to make discretionary decisions and act opportunistically. The overall result is inefficient use of resources of the state-owned enterprises.

State corporations, by rule, do not have the maximization of profit as its primary objective. State corporations are usually founded with the social and political objectives, or some economic objectives other than profit maximization. State, i.e. political authorities in power who are acting as managers in state corporations are the ones who set such non-business goals. Besides, political authorities can also achieve some of their interests by providing different special benefits for state corporations: covering their losses, provide them access to external financial sources at below-market level interest rates, giving subsidies, soft budget constraint, preventing them from bankruptcy. This leads to the inefficient allocation of resources, because the redistribution is conducted contrary to market principles.

In private corporations, corporate governance issues comes down to the problem of choosing the best mechanism of control. In state corporations it is additionally complicated by the fact that political authorities represented through the managers of state corporations are the principal and the agent at the same time – the principal of the corporation, and the agent of public. This makes the managers of state corporations additionally inclined to opportunistic behavior.

4.2. Private corporation and governance

Contemporary economic trends are dominated by corporations in which decisions are made by individual economic actors. This does not mean that the political actors denied their right to control the use of resources. Political actors (the state) do not participate in direct decision-making in the company, but by introducing regulations and interventions on the market they prevent private actors - owners or managers to manage resources freely.

Thus the state i.e. political authorities indirectly influence the decisions on the use of private resources in certain direction. The objectives of introducing regulations may be different, but as private corporations are naturally, endogenously profit-oriented, the reasons for introducing regulation are consequently not-for-profit. In the next part of the paper, we will try to examine how such regulations are affected by the relationship owner - manager, and the efficiency of private corporation management? In other words, we want to examine whether the corporate governance regulation is needed or free markets (with the role of state reduced to the protection of property and contracts only) could maximize economic and overall social efficiency.

We will analyze two cases: 1) free market without government intervention, in which property rights are completely protected, so an owner can sovereignly make the decisions on the use of his resources in accordance with his best interests; 2) the regulated market with state intervention.

4.2.1. Corporation management in the free market

Property rights, as already said, means that the owner shall control the use of resources that belong to him. Economically it means that the owner can hold and use the resource in desired way, collect the benefits or take the loss of its use and transfer some or all of these rights to another entity. In the free markets, these three privileges are unlimited and exclusively belong to an owner. The owner is the one who sovereignly decides what to do with the property – whether to use it and in which way, to enjoy benefits or take costs of its use and to decide to whom it will be given and under what conditions. The same reasoning is valid for shareholders. Shareholders have the exclusive and unrestricted right to control the corporation, not the managers. However, in case they want to do so, shareholders have the right to delegate some of those decisions to the managers through management contracts.

Mises believes that the role of managers in the corporation is always subordinate to the role of the owner (Mises, 1998). Engaged managers can successfully manage the business of the corporation, but as Rothbard said in a free market economy owner is the one who ultimately bears the responsibility and control of the entire process (Rothbard, 1995).

If the owner is not satisfied with the work of managers, in free-market situation, where the role of the state is only to provide efficient protection of property and contracts, he has two options. In case an owner has significant power in decision-making in the company, he can dismiss the manager. In case when an owner has relatively small influence in decision making, i.e. owner has relatively little portion of shares, he can sell his shares at the market. In other words, in free market situation, with no government intervention, the corporation and control of its activities is always in the hands of owners, not managers. Shareholders have continuous control over the operations of the corporation and the work of managers who manage the corporation. Protection of property rights and contract enable efficient control mechanisms, which protects owners from abusive managers. In economic theory, there are two antagonistic understanding of the essence of the contract and the contractual relationship.

Mainstream economists usually think of the contract as a zero-sum game (if one side gains, the other one has to lose).

With the absence of government intervention, contracting is free from influence of any kind, and contracting parties voluntarily shape or accept the terms defined in the contract. Contract provisions regulate the principal-agent relation between the owner and managers. It cannot eliminate information asymmetry; however, it is important whether the managers would take advantage of their position and act contrary to the best interests of the owner. Such behavior would bring them into position to breach mutually beneficiary contract. Described contracting mechanism will work only in institutional framework with efficient constitutional protection of property rights and contracts. This is the role of the state - to create an institutional framework ensuring the protection of property rights and enforcing contracts, instead of preventing owners with unnecessary regulation to direct the resources in accordance with their own interests.

This brings us back to the conclusion that free market agreement is always a positive sum game: both contracting parties benefit from contractual relations, so that rational manager would not act contrary to the provisions which he has accepted, because he would thus make a damage to himself. The concept of economics as zero-sum game, advocated by many economists does not apply to the free market. "A market economy is the exercise of people's freedom to exchange. In such an economy, one cannot "make a fortune" at the expense of others, but only by offering others a better deal and, thereby, making them richer. Thus, it is not a zero-sum game (Ayau, 2007).

Shareholders have several instruments of control over the managers. Besides formal institutions standardized through legal acts, different form of informal institutions are even more effective means of control. Informal rules strongly influence behavior of owners and managers. For example, reputation of managers is a powerful instrument which prevents managers acting against the interests of owners. Shareholder can implement different forms of sanctions if the harm has been made. Reputation is always efficient self-regulation mechanism (Strigham & Boettke, 2004). Managers obtain and maintain good reputation by acting in the best interest of shareholders. Good reputation raises price of a manager at the "managers' market". Bad word on a manager's work in public, or poor results are severely endangering the position of such manager on the market. Of course, efficient protection of property and contracts enables shareholders to sue and process managers who breach management contracts through judiciary system.

Competition is always the feature of free markets. Thus, we can speak about competition between managers, as internal (managers in the company compete among themselves in order to get better position) and external (managers want to achieve the best result so as they can be hired by the best company). In addition to the competition in the labor market, competition in the market for goods and services is no less effective mechanism for controlling managers. Goods and services that the firm provides to consumers must satisfy their needs. If there are no buyers of a company's goods and services, the company will lose money and bankrupt. Decreasing sales can be the signal for shareholders to review the quality of the managers. Whenever the state intervenes on the market, it puts several market actors in better position than the others, and it puts out previously described control mechanism.

Another mean of disciplining managers is the market of corporate control. The significance of this phenomenon for a market economy was realized by Henry Manne who argues that the possibility to take over the company can be very efficient

controlling mechanism over the work or managers and lead to better economic efficiency. Shares' prices of poorly managed companies will fall. An investor, hunter on undervalued companies, can see the opportunity when current share's price is lower than what he believes is its potential value. Thus, he can give an offer to shareholders to buy their shares on the price, which is slightly higher than current market price, but still lower what he considers potential price should be. After such entrepreneurial investor obtains controlling stake in the company, he can set new management team, which will increase shares' prices.

This situation is bringing benefits to all parties - the investor who took over the company; shareholders who sold their shares, because they had been satisfied with price higher than the market price at a given moment and owners who kept their shares because the price of their shares had increased. The state gets higher tax income from the company. Dismissed managers are the only "losers" in this situation. However, their position is the result of the poor quality of their work. That is why the market of corporate control is very efficient mechanism of control over the work of corporate manager. Just an existence of a latent threat of hostile takeover leads managers to work harder, in order not to get fired and endanger their business reputation.

Bearing in mind all these control mechanisms that are available to owners - the shareholders "agency problem" is practically non-existent in the free market without government intervention as there are effective ways to deal with all potential conflicting situations occurring in shareholder-manager relation. As there is no separation of ownership from control it means that the theory of Berle and Means does not work. Business realizes its natural goal – profit. Instead of creating fertile ground for business development, the state, i.e. political authorities often restrict market opportunities and competitive pressures through rigid laws and regulations, with social and political goals behind them. Excessive regulation violates the primary role of business - making a profit. In business nothing is more important than profits! "It's its natural lifeblood. As nothing is more important to any man than his own life. But in the same way that the fact that we love nothing more than our own life does not mean that we should kill other people in order to save our life, in business we cannot do anything to make a profit." (Vukotic, 2004)

4.2.2. Corporate governance and state intervention

Government intervention, even in the economy with completely or predominantly private property, prevents owners from using resources in order to pursue their interests. Any form of intervention reduces the choices of an owner, because in certain circumstances the owner is forced to do whatever is imposed or encouraged by regulation. Regulation can always be understood as a mean of coercion – it forces the owner to use his resource on the way that can be contrary to his own interests, to use the resource on the way that he would not otherwise use, or reduces the choice of options available to an owner. Regulation often raises the costs of using resources or transaction costs in general.

As Mises says, intervention "brings the benefits to a limited group of people, and troubles to all others, that is, the vast majority of other" (Mises, 1998,), because it brings privileges to some at the expense of others. In the system with state intervention, each rational economic actor wants to enjoy benefits of regulation, i.e. to get in the position of "net winner" rather than "net loser" (Rothbard, [1962] 1993). This results in conflict of interests and make the conflict essential feature of economic systems with state interventions. Conflicting nature of interventionist societies can be expected, because rigid regulation, which puts limit to the choices of an owner, preventing him to use his resources in desired way, and put certain individuals in society in position to act and meet their own interests at the expenses of the others. The opposite situation occurs in free market societies with the protection of property rights and contracts, where each individual tends to meet the needs and interests of other people in the best way and thus simultaneously satisfy their own interests.

When you understand the nature of intervention, it is easier to answer the question of how the state interventionism impacts the corporate governance. Does government intervention encourage or prevent mechanisms ensuring that management is working in the best interest of shareholders? Does it cause new problems in principal-agent relation in corporation? State intervention in the area of corporate governance usually occurs in the form of a regulation which imposes restrictions on financial institutions, anti-cartel laws, regulation of takeover and bankruptcy, ban on insider trading, or indirectly includes the working area of the legislation and taxation. Government intervention in the area of corporate governance is imposed by corporate governance regulation, whose primary effect puts limits on the choices an owner has in free exercise of his property right. As

a consequence, it gives more opportunities to managers, to act at the expense of owners. Regulation thus puts out functions controlling mechanisms over the work of managers and clearly separate ownership from management in corporation. As implementation of regulation is put above contractual provisions, it gives opportunity to managers to act more comfortably, and more likely to violate its contractual obligation. Slippery slope argumentation (Rizzman & Whitman, 2003) is often used to justify more rigid regulation. Rational managers are using the benefits regulation provided them and omnipotent class of managers is made. Thus, we can conclude, that Berle and Means definition of corporate governance "problems" can be accepted only in interventionist and regulated environment, i.e. "the agency problem" in owner-manager relation really is a problem in a regulated economy, because interventionism reduces the power of the owner to control the use of the resources he owns.

5. CONCLUSIONS

The analysis in this paper has shown that corporate governance system, problems in corporate management and the way these problems are being solved are dominantly influenced by institutional framework in a country. Institutional framework consists of formal and informal institutions in a society. All rational economic agents do not operate in vacuum, but shape and evolutionary adapt their decisions to the circumstances in economic environment. Corporate governance system in an economy depends on the prevailing form of property and the way property rights, as the basic economic institution, are well defined and protected. Prevailing form of property and the level of protection of property rights might be the cause of all potential problems in corporate governance. If market is free, and the state doesn't intervene but keep its role to protection of property and contracts, the control mechanism will prevent managers to act contrary to the interests of owners. Such system of corporate governance enables corporations to achieve its primary goal – make profits. When the state strongly protects property and contracts, and doesn't interfere in market relations, agency problems are practically non-existing, so we cannot speak about corporate governance problems.

Globalization processes, i.e. free movement of goods and capital put new requirement on companies, who want to make business on global market – to adapt to new condition. This change will necessarily include changes in organization structure. Many efforts are being put in looking for the new solutions in corporate governance, in looking for new mechanisms which will make corporations more efficient. If we look at the analysis from this paper a question that arises is whether that is the right way. Will these new mechanic solutions in the corporate governance practices really bring better efficiency? Will all new regulations imposed by international organizations really make corporate governance more efficient? That can be the subject of further research in this area.

Theoretical analysis in the paper proves that introducing new regulations introduce new limits to owners and investors and prevent them from using their resources on the way they want. New regulations are additionally distorting incentive mechanisms in corporation. Instead of rising, the efficiency deteriorates. The essence of the solution lies in the change of institutional arrangements in a society. Institutional change as the part of overall social change is very complex process which depends on the existing network of formal and informal institutions in a society. The role of state and regulators should not be to impose new regulation and protect interests on some social groups on expense of others, but to protect property and contracts. Institutional setting in which the role of state is to enable private owners to freely use individual property rights through protection of property and contracts, is a precondition for efficient corporate governance.

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5.

Review paper

FAMILY AND CHILD PROTECTION IN MONTENEGRO: THE CHARACTER AND OUTCOMES OF REFORMS IN THE LAST TWO DECADES

FAMILY AND CHILD PROTECTION IN MONTENEGRO: THE CHARACTER AND OUTCOMES OF REFORMS IN THE LAST TWO DECADES

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ABSTRACT:

The system of social protection in Montenegro is rather complex. It has undergone many changes during the last two decades because of the transition process and because of the process of integration to the EU. The main changes pertain to the development of social services and inclusion of the socially marginalised groups. The system of social benefits, however, remained mostly unchanged, with policies regarding parental leaves and early childhood education and care having undergone only small adjustments. The purpose of this article is to analyse the developments and the current status of Montenegrin social system, with the special focus on parental leaves and on child/family services and benefits. We shed light both on the character of the policy reforms and on their outcomes regarding gender and social inequalities of children and families.

Keywords: family/child policy, reform, social services, benefits Montenegro

1. INTRODUCTION

The first regulations regarding social protection in Montenegro were passed into in 1922, when Montenegro was a part of Kingdom of Serbs, Slovenian and Croats. In that year Law on social insurance of workers was adopted at the national level. This Law was related to pension and disability insurance and did not cover the insurance in the case of unemployment, which were defined few years later. In the same year, 1922 the Law on protection of children and youth was adopted and according to it many institutions that provided help and services to children were established. The first law related to family allowances was drafted under FPRY[1] in 1950, and it was Law on social protection of workers, administrative workers and their families. During the next 40 years Montenegrin family and child policy did not differ from the policies in other members of socialist Yugoslavia. Resolution of federal state at the beginning of 90's, had devastating consequences on lives of citizens in all former member states. Difficult social and economic situation and new institutional and political reality required new policy responses, which were now defined at the level of individual states.

In Montenegro, the transition process began somewhat later than in other Yugoslav member states (Serbia and Bosnia are also countries considered to be late reformers) and was marked by inflation, sanctions and complex relations with Serbia. All this resulted in a very difficult economic situation, which is best illustrated by the fact that GDP was more than halved in ten years' time. Therefore, the end of the 1990's was primarily focused on changes that could enable economic transformation, while social policies were focused mostly on those groups that needed most help at that time (the unemployed, refugees).

During this period, the processes of privatization, deregulation and liberalization began, which led to a significant revival of economic activity. However, due to the later beginning of the transition, the first positive economic effects of the changes became visible only at the beginning of 2000, which created the conditions for social, educational and pension reforms. In fact, it could be stated that the beginning of the 21st century represents the beginning of the creation of a comprehensive social policy in Montenegro.

The goal of this paper is to provide an overview of the changes in social policy in Montenegro in the last two decades (from beginning of 2000 to 2022). The paper focuses only on family policy not because social policy system in Montenegro is very comprehensive, but because it is the aspect least researched and analyzed in literature. The paper primarily represents the overview of changes in legislation, i.e. relevant laws or sub laws. However, it also attempts to analyze contributions of those changes to the overall development of the social protection system. The research notices three major periods in the reform of the family policy in Montenegro: reforms at the beginning of 2000, changes that occurred during 2000 and current state.

The paper shows that changes in the social protection system were mainly caused by difficult economic and social situations that country faced, especially those at the beginning of the observed period. However, most recent changes were motivated by the trends in the social policies in EU (such as paternal leave) as well as by the political efforts of some parties to support certain population groups (such as allowance for mothers with three or more children). Regardless of the initial motivation for particular change in family policy, they always provided further development of social services. Unfortunately, those changes did not always significantly penetrate the level of policymaking and implementation. That is why we may conclude that despite positive developments in family policy in Montenegro during the last two decades, institutions themselves have not been significantly transformed and the system is still very centralized.

The basic changes in the three aspects of family policy are presented in the following table.

[1] *Federal People's Republic of Yugoslavia*

Social care

Law on Social and Child Protection *(defined social and child protection rights),*
1993: *introduced conditions for exercising the right to maternity leave benefits*
2001: amendments to the Law; *change related to availability of child allowances and family material support*
2003: Poverty Reduction Strategy *(aim: better targeting of funds allocated for social protection)*
2005: New Law on social and child protection *(some benefits were abolished (food in the kindergartens), some new benefits were introduced (personal disability benefit, compensation to a faster family) and for the other the eligibility is changed (child allowance, other person's care).*
2015: Amendments to the Law on Social and Child Protection *(life-long maternity benefit and caregiver allowance introduced). In 2017 withdrawal of life-long maternity benefit*
2016: Amendments to the Law on Social and Child Protection *(changes related to child allowance conditions)*

Labour

1990: Law on employment relations
1991, 1992, 1994, 1996 and 2000: *amandements to the Law (changes in conditions for paid maternity leave)*
2003: Labor law replaced Law on employment relations *(introduced the parental leave concept and other issues related to parental leave)*
2008: New Labour Law *(introduced the minimum wage concept)*
2008, 2014 Collective agreement *(defines the minimal rights and obligations from the employment)*
2009, 2011, 2012, 2014 and 2018: *amendments to the Labour Law (increased protection of pregnant women on their working place)*
2020: New Labour Law *(stricter eligibility criteria to qualify for full amount of employment-related leave benefits; novelties related to the protection of women during pregnancy and maternity leave, as well as novelties concerning the exercise of the right to parental leave.)*
2019: *Increase of minimum wage from 193 EUR to 222 EUR*
2021: *Increase of minimum wage from 222 EUR to 250 EUR*
2022: *Increase of minimum wage from 250 EUR to 450 EUR*

Education

2001: "Book of change" *(the main strategic document in the area of education defining reform principles: decentralization, equal education right for all and choice in accordance to child abilities)*
2002 General Law on Education, amended 2005, 2007, 2008, 2009, 2010, 2011, 2013, 2017 *(the organization and conditions for performing educational work are regulated)*
2002: Law on Preschool Education , (amended 2010, and 2011) *(defined early education and care (Preschool education is divided into education for children from 0 to 3 years in nurseries, and 3 to 6 years in kindergartens.)*
2002: Law on Primary Education amended 2007, 2010. 2011. 2013, 2017 *(latest change regulates extended stay and/or morning stay of pupils)*

2. LITERATURE OVERVIEW

The literature review on this subject is very modest, as it was not particularly at the focus of research community.

That is why the starting point for this research were laws, national strategic documents on social policy and its reforms and periodic work reports of national institutions. Also, several documents prepared by the authors from the Institute for Strategic Studies and Prognoses (ISSP) were used, as well as series of works that ISSP researchers published as members of ESPN (European Social Policy Network).
The study Social Protection and Social Inclusion in Montenegro (Kaludjerovic, et al, 2008.) still represents one of the most comprehensive analysis of social protection system in Montenegro. It is based on research into economic, demographic, and labor market trends that influence social protection. Also, the study describes the main institutions and the legislation of the current social protection system, as well as current reforms and challenges. This study points to system design influenced by inherited social policies from the past.

One of the most recent articles on family policies in Montenegro compares them with those in the European Union (Boskovic, et al, 2021.) The article demonstrates that the Montenegrin legal framework takes a positive approach to family policies with regards to the duration of parental leave and parental pay, which is higher than the EU average. However, the data show that children and parents in Montenegro enjoy significantly lower living standards and face a higher risk of poverty and social exclusion than children and parents in EU.
The analysis of the transition of different policies in Montenegro, including social policy, shows policy shift from equity towards efficiency but not significantly (Kaludjerovic, et al, 2008.). The article concludes that social policy is not well targeted, it lacks decentralization and control and monitoring systems. The article concludes that there is still a room for improvement.

Several articles emphasize that the development of social policy was based on inherited policies and institutions from the previous period. Montenegro, like all countries of the former Yugoslavia, shared the same social protection system, which was a combination of Bismarckian and universal system and which was a rather generous welfare system upon the principles of solidarity and equality, aiming to alleviate unfavorable conditions resulting from a certain social risk as well as to enable social participation (Stambolieva, 2011.). However, regardless of the same

legacy, the development of the social protection system in Montenegro differed from those in other republics. For example, the comparison between Montenegrin and Slovenian developments and changes in the core fields of social policy shows that Slovenia has more gradualist approach in reforms while Montenegro had ad hoc approach (Filipovič Hrast, 2020.). The same articles concludes that social reforms in Montenegro were carried out in the direction of supporting certain population groups that had been targeted by state policy due to their particular vulnerability.

3. METHODOLOGY OF THE RESEARCH

The focus of this article is put on the different aspects of the family policy. Although Montenegro has never had a separately defined family policy, for the purposes of this analysis, the authors deal with policy measures that are aimed at families with children, namely cash benefits, services and time, or parental leave. Having in mind the nature of this research work, desk research was primarily applied, which consisted of the analysis of already existing data as well as qualitative analysis of the content, which enabled the subjective evaluation of the studied content. These methods are applicable in a particular case because they can be used for various materials including legal regulations, laws and similar. The aspects that are analysed are regulated by several laws: Law on Social and Child Protection regulates overall social welfare system, Labour Law defines maternal and paternal leaves and labour market measures, while General Law on Education and Law on Preschool Education define early education and care and primary education. All these regulations have undergone significant changes during the last two decades.

Historical analysis is also used in this paper. This method is practical in such research as it allows understanding the turning points that are key to understanding the need for a reform process in the past. This method was applied primarily to the evidence in various documents, which emerged as the subject of previous research.

Also, a critical analysis of all collected documents, legislative contents and previous research was applied. The application of these methods allows us to view more rationally the processes that took place as a sequential set of political decisions at a given time in which Montenegro found itself.

4. RESULTS AND DISCUSSIONS

Considering those changes we differentiated three periods in the reform of the family policy in Montenegro: reforms at the beginning of 2000, changes that occurred during 2000 and current state.

4.1. Initial changes at the beginning of 2000

The main reform period in Montenegro regarding family and child protection started at the beginning of 2000. However, that period also represented the beginning of comprehensive reforms in public policies including economic, fiscal, monetary policy and labor market policy, business environment reform, education system reform, etc. Such decisive and comprehensive reforms were launched to create the conditions for economic growth in a country exhausted by the events of the previous decade that led to a significant decline in economic activity (in 1999, GDP was 61% lower than in 1989), high unemployment (unemployment rate in 2001 was at the level of almost 25%) and inflation (over 10%). (ISSP, 2003)

All systems (social, educational, labor market system) in Montenegro were (and still are) very centralized. All services were administered by the Ministry of Labor and Social Welfare or the Ministry of Education, i.e. from the national level. Also, all systems were financed from the central budget. Most of the services were provided through the institutional system, i.e. social protection institutions (centers for social work, home for pensioners and other elderly people, special institutions for children and youth, children's homes and institutions for rest and recreation of children), while non-institutional forms were very underdeveloped. Municipalities did not have an obligation prescribed by the law, but they had right to get involved in these areas, for example by providing additional one-off assistance to their citizens, providing services such as public kitchens, resolving housing issues, providing free textbooks for schoolchildren, etc. However, municipalities did not use this opportunity and there were only a few hundred users of these services provided by local governments.

At the beginning of 2000 the valid law that defined social and child protection was Law on Social and Child Protection from 1993. Social protection rights that Law from 1993 prescribed were: family material support (FMS); professional rehabilitation and work training; accomodation in a social welfare institution or in another family; compensation for care and assistance of another person (other person's care); health

care; funeral expenses. Social protection of children included child allowance; one-off cash assistance for a new-born; vacation and recreation of children and nutrition in student canteens. This set of social benefits and services remained up to date with slight changes. The 1993 law introduced two significant changes in comparison with the Law from 1990, with the aim to provide additional support to citizens who were in severely difficult situation due to inflation. The first change was related to the child allowance that has been defined as universal benefit for first three children while prior the availability for this benefit was conditioned by the household's income level. The second change was related to family material support. For the first time law precisely defined terms for this benefit while previously the law defined only general terms related to the household income level and owned property, while sub laws defined precise terms.

The Social and Child protection law defines the compensation for the maternity leave. The 1990 law prescribed this right to all employed as well as self-employed mothers, and the base of the level of compensation was salary during the previous period (for employed mothers) or average monthly wage in the country (in the case of self-employed monthers). The 1993 Law introduced, for the first time, conditions for exercising the right to maternity leave benefits, according to which the mother was entitled to full compensation (100% of the salary that she would earn on that working place) if she was employed for at least 6 months before the beginning of the leave, and 70% of the salary that she would earn if she was employed from 3 to 6 months.

The 1993 Social Protection law was amended in 2001. The basic change was related to availability of child allowances, as well as in availability for family material support. This change linked the child allowances to a family status and health conditions of children (previously up to three children per family had right to child allowance). On the other hand, right to use FMS has been broadened and has included the persons able to work, with dependent children. Due to these changes the number of users of FMS increased from 1.936 in 2000 to 8.938 in 2001, while number of families users of the children allowance for the same period decreased from 79.463 to 5.264. Both benefits were defined as share of the average monthly wage in the country. In 2001 FMS for four-member family amounted 70% of the average monthly wage, while child allowance was at the level of 30% of average monthly wage.

Labor legislation was changed several times during 1990's regarding the rights to maternity leave. At one point according to the Law on employment relations from 1990 and amended in 1991, 1992, 1994, 1996 and 2000) women had right to paid maternity leave for 12 months for the first, 18 for the second and 24 months for the third child. The prescribed right was a maternity leave that could be used by father only in special cases such as death of mother or her inability to take care of children. However there was no possibility to transfer that right to father in other cases. In 2003 the new Labor law replaced Law on employment relations, after five years of negotiations with unions. This law introduced the parental leave concept for the first time in Montenegro. More precisely, law prescribed that women has right for 365 days leave which has to start at least 28 days before the birth. A woman has also the right to return to work before the prescribed period but not before 45 days after giving birth to a child. Also, if a women returns to work, she has right for 60 minutes break for breastfeeding. In addition, the law prescribes that the right for parental leave may be used by a working mother or a working father. Thus basically from 2003 the law defined maternity leave as the period of 73 days that has to be used by women in order to preserve her and child health, and paternity leave, which may last for 292 days and may be used by a mother or a father. Therefore, Montenegro's leave policy design from that time is equality-enabling because of providing a shared right to a well-paid parental leave without any exclusive fathers right (Dobrotić, 2019). The labor law also prescribed protection of the employment status of an woman during pregnancy as it prescribed clearly that the employer cannot refuse to conclude an employment contract with a pregnant woman, nor can he/she dismiss her due to pregnancy or maternity leave.

In 2001 Montenegrin Parliament adopted the «Book of change» the main strategic document in the area of education. The main principles on which this reform was based are: decentralization of the education system, equal education right for all and choice in accordance to child abilities. The adoption of the «Book of change» was followed by adoption of several crucial laws in the education sector among which one was Law on preschool education and upbringing that was adopted in 2002. The Law did not introduce significant changes, as preschool education was available to every child in Montenegro. Preschool education is divided into education for children from 0 to 3 years in nurseries, and 3 to 6 years in kindergartens. Preschool education programs are free in public institutions, while parents pay only for the cost of meals for the all-day primary program. For children from the most vulnerable groups, such as children from socially vulnerable families, children without parental care, etc., preschool education is completely free. In public pre educational institutions if more children apply for the enrollment, and the institution cannot accept everyone, the following criteria are taken into account: Are the child's parents employed?

Does the child come from a single-parent family, or is it a family with two or more preschool children? Does the child live near the place of residence and did the child previously attend that educational institution? The elementary and secondary education is obligatory and all costs are covered by the government in Montenegro. Parents only need to finance schoolbooks and other learning materials.

4.2. Changes during 2000's

At the beginning of 2000's, the key problem of social protection was its inability to cover all the most vulnerable groups of the population. This problem was followed by significant delays in the payment of benefits which was from 6 month in the case of child allowance to 12 months in the case of family material support. In addition, benefits were not sufficient and only reduced vulnerability of the household while they still remained insufficient. Considering all these limitations, Montenegrin Government in 2003 adopted Poverty Reduction Strategy (IMF, 2004) which was followed by the adoption of new Law on social and child protection in 2005. The main reason for the reform was better targeting of funds allocated for social protection and disburden of state budget. According to the 2005 Law some benefits were abolished (food in the kindergartens), some new benefits were introduced (personal disability benefit, compensation to a foster family) and for the other the eligibility is changed (child allowance, other person's care).

In 2008 the Parliament of Montenegro adopted a new Labour Law, which brought significant improvements in labour market flexibility and introduced the minimum wage concept according to international standards. Since then the minimum wage has been protected on two levels: by the system of coefficients defined in the general collective agreement and by the level of minimum wage defined by the labour law. The collective agreement, signed between social partners, defines the minimal rights and obligations of employers and employees. According to current agreement (adopted in 2014) wages for a certain level of education are calculated by multiplying coefficient for specific educational level with accounting coefficient (currently 90€ on monthly level). It is also defined that wage cannot be lower than the national absolute poverty line. In addition, labour law defines that minimum salary can not be lower than 30% of the average salary in Montenegro in the previous half-year according to the official data. The Law was later changed several times in 2009, 2011, 2012, 2014 and 2018. Some of those changes were aimed to increase protection of pregnant women on their working place.

However, the most important change since 2000 happened in 2015 when with the amendments to the Law on Social and Child Protection two new benefits (life-long maternity benefit and caregiver allowance) were introduced. Life-long maternity benefit was introduced for all women with three or more children who have at least 25 years of work experience. The compensation was settled at the level of 70% of the average net salary, realized in the year preceding the year of exercising the right. Also, women who gave birth to three or more children, and who have been on the records of the Employment Bureau for at least 15 years had the right to this compensation. This measure was very welcomed especially by the working population and some of the women left their jobs as they become entitled to this compensation. The first projections of the Government were that only few hundreds of women would exercise this right. However, the implementation (started in January 2016) showed a completely different situation. The life-time maternity benefit was given to 21.000 women (12981 women who were registered as unemployed, 4309 women who terminated employment contracts and 4761 women who abolished pensions). The spending for the 11 months of 2016 amounted to around EUR 54.1 million while for all other social benefits EUR 63.0 million was paid. As funding for this right become financially unsustainable the benefit was withdrawn in the mid-2017 based on the decision of the Constitutional Court. Only mothers who have left the labour market to exercise this right can continue to use the benefit (€193-€336 per month) for additional 3-5 years, or until retirement (if they were 55-61 years old).

The second benefit introduced was caregiver allowance, which could be paid for more than one disabled person in the family if only one is entitled to personal disability benefit. A parent or guardian who raises and cares for two or more children with special needs and disabilities of which at least one is user of a personal disability benefit or benefit for care and assistance, is entitled to compensation. The only eligibility requirement is that the child(ren) with disability is/are taken care of within the family, not in a specialized institution.

In 2016 the law was amended in relation to the child allowance which can be exercised by a child who attends primary or secondary school, provided that his/her parents do not receive social and material benefits and are on the records of the Employment Bureau as unemployed persons. This decision was abolished by changes introduced in 2017. Those changes were implemented in order to include the decision of the Constitutional Court regarding the life-time benefits for mothers with three or more children. However, some new changes were also included and

were related to the following: increase of the child benefit by 20% and increase of benefit for a new-born child by 20%. In addition, parents able to work, who support the child, unless the child is a beneficiary of care and assistance allowance, were entitled to family material support for the entire year, and not up to 9 months a year, as prescribed.

Changes related to the Labour law during 2000's were aimed at introducing stricter eligibility criteria to qualify for (full amount of) employment-related leave benefits, while there were no significant changes related to the educational services.

4.3. Current situation

The current regulations in the field of labor rights are based on the new Labor Law that entered into force in January 2020, replacing the labor legislation that was based on the Labor Law from 2008. The new legislation provided novelties related to the protection of women during pregnancy and maternity leave, as well as novelties concerning the exercise of the right to parental leave. Parents who have a child have the right to use paid maternity leave (mother) or parental leave (mother or father) for 365 days. The main changes that currently apply concern the fact that the new law defines that an employed woman uses mandatory maternity leave of 98 days, of which 28 days before the day of expected birth and 70 days from the birth of the child. Also, maternity leave of 70 days from the birth of a child can be used by both parents at the same time, if two or more children are born.

According the new Labour Law, the employer cannot terminate the employment contract of an employed woman due to pregnancy (if the dismissal is the result of non-compliance with work obligations, the employer will be obliged to explain the reasons in detail).
An employed woman who is absent from work due to pregnancy, maternity or parental leave cannot be declared an employee whose work is no longer needed. If a woman is employed for a definite period of time, and her employment contract expires during pregnancy, maternity or parental leave, the employer will be obliged to extend the duration of the employment contract by an annex while exercising one of these rights. An employed woman who starts working before the end of the leave has the right to use a two-hours break in addition to daily rest due to breastfeeding (previously, the break amounted 90 minutes). This right lasts until the child reaches one year of age, regardless of whether the child's father uses some of the rights (for the same child).

Decisions relating to parental leave equate the father as the other parent with the mother, who was discriminated against in previous legislation. This is best confirmed by the fact that the father could use parental leave only if the mother was employed and did not want to use parental leave, which means that the use of parental leave by the father was treated not as his right but as a gift offered by the mother. Therefore, the new legislation has equated father and mother in terms of exercising employment rights, especially due to the fact that father's employment contract (if temporary contract) will be extended for a certain period of time, while using parental leave, which has not been the case so far. As a consequence, an increase in the number of fathers exercising parental rights in Montenegro can be expected. This is an attempt to put on the same level what belongs to the domain of parental responsibility and parental rights.

The number of fathers using the parental leave is still very low. According to the records of the Institute for Social and Child Protection, during 2018 only 3% (203) of fathers were beneficiaries of salary compensation for maternity / parental leave (out of a total of 6,196 beneficiaries). However, in the first eleven months of 2019, more than 420 fathers exercised their right to maternity leave in Montenegro, according to the Tax Administration. That is more than twice the amount compared to 2018.

A novelty in the Law is the right of an employee to one day of paid leave during the month in order to perform prenatal examinations. Also, the novelty is the possibility of temporary reassignment to another job for pregnant employee or during breastfeeding, based on the findings and recommendations of the competent doctor. This right is related to woman who works in jobs that could endanger her life, health, or which may endanger the child's health. In this case, employed woman can retain the right to earnings in the same amount. The new law also envisages the so-called "non-transferable part of parental leave", which lasts for 30 days, and both parents must use this right in order to be able to transfer the remaining part to the other parent. During the exercise of this right, parents cannot be declared as persons whose work is no longer needed.

In addition, a new institute was introduced - the so-called "foster leave". This means that for the first time the right to paid foster leave provided for an employed foster parent who took a child under the age of eight into foster care is envisaged. During the exercise of this right, this person cannot be declared a person whose work is no longer needed, and he/she has the right to return to the same or appropriate job with the same salary after the expiration of leave, as well as the possibility to

change the working hours. In that sense, the employment status of these persons is protected, as well as for the adoptive parent of the child. However, the status of non-employed breadwinners remains open, which requires further changes in legislation, primarily in the area of social and child protection.

The right to refunding the wages to the employer, for wages paid to an employee who is on parental leave, as well as the method of determining the amount of refunding (30% to 100% of wages, depending on how long the employee worked for that employer) is valid under the Law on Social and Child protection, as before and has not changed. Entrepreneurs are also entitled to a refund, as well as employers whose employees work part-time. Parents have right on part time work only if the child need special care (until the child is 3 years of age) or have child with special needs (without limitations). However, some research show the existence of gender-based discrimination reflected in the abuse of the right to paid leave (in the form of non-reimbursement of wages, termination of contracts or placing women in a lower position).

The minimum wage in Montenegro increased during 2019 from 193 to 222 euros, to 250 euros in October 2021 and to 450 euros in 2022. This increase is significant due to the fact that certain social benefits are aligned with the wage level. The child-related benefits remained the same in structure. Child allowance was only available for children from families who are users of other social assistance. This right applied only to the first three children. Unemployed mothers received a childbirth allowance in the amount of around 80 EUR per month until the child is one year old. However, in 2021 Montenegro's Parliament again introduced the universal child allowance for children up to 6 years old with intention to apply it for all children younger than 18 from October 2022. Additionally, every newborn child has right for one time cash benefit, amounting around 100 EUR.

Pre-school education is equally accessible to every child. It is important to note that despite the situation of too many children in some kindergartens, no child whose parents want to send it to kindergarten is rejected. From 2019, there is also a recommendation from the Ministry of Education that all children should be enrolled in preschool institutions[2].

[2]In Montenegro there are 43 pre-primary educational institutions of which 21 institutions are public and 22 are private (MONSTAT, 2018).

Pre-school education programs are free in public institutions, while parents pay monthly amount of around 40 EUR for the cost of meals for the all-day primary program. Parents from vulnerable families (users of social benefits) do not have to pay for food.

Out of the total number of children in age group 0–6, 33.2% attend pre school institutions (Prica, et al, 2014). However, coverage of children varies across municipalities, and the coverage is higher in the municipalities in the south that have higher level of economic development. In addition, in the central and south region many of the kindergartens function above full capacity. Out of the total number of enrolled children, children enrolled in public institutions account for 95.3%. The average number of children per educational group in public pre-primary institution is 32, while in private it is 15.

Law on Primary Education regulates extended stay and/or morning stay of pupils. It is prescribed that primary school, in accordance with its possibilities, organizes an extended stay for first grade pupils, and exceptionally for second grade pupils. Morning stay and extended stay are intended to be the form of work for lower grade pupils that ensures quality leisure time before and/or after school, under the supervision of teachers and thus raises the overall quality and efficiency of the whole teaching process[3]. Working in an extended stay requires flexible organization, adapted to the needs of pupils and the possibilities of the school. The school independently decides whether to organize an extended stay, in accordance with its capabilities, while morning stay is mandatory for the pupils of the first grade. The extended stay is organized from 7 am to 5 pm, primarily for students in urban areas.

At the beginning of 2018, the Parents Association conducted a survey on primary education, which showed that parents are generally dissatisfied with the primary education system, and among the others, they had an opinion that every school must have an extended stay. According to this research, almost half of primary schools do not have the possibility of extended stay, and if they do, it is mostly only for the first grade.

[3]Morning stay, according to the plan of work and activities, includes morning gymnastics, breakfast, watching cartoons, listening to children's music, singing, activities in the school yard/physical education hall, social games in the playroom etc. Also, extended stay includes doing homework, learning, lunch, dancing, creative workshops (music, literature), reading books/children's magazines etc. Most of the time during the extended stay should be devoted to activities within independent learning of pupils.

Moreover, the extended stay was created in response to the needs of working parents who have no other options for caring for their children, since the school obligations of children are shorter than the working hours of parents.

In 2013, the Bureau for Education Services developed the program "Morning Gathering and Extended Stay of Students". The program was introduced on the model of the one elementary school from Podgorica which has been implementing this program for the longest time, since 1961. However, certain institutions, such as the Education Resource Center "1. jun", organizes an extended stay for all pupils from Podgorica up to 15 years of age.

In 2018, out of 163 primary schools in Montenegro, the extended stay was organized in 30 schools. Thus, several schools in Podgorica with a large number of pupils, in 2019, did not have the possibility for organizing an extended stay for first grade pupils. In case they needed an extended stay for parents work, parents were forced to enroll pupils in a private extended stay, which is expensive.

5. CONCLUSION

The transition process that Montenegro has gone through, as well as the need to redefine the social services that would accompany such a process, have influenced the social protection system to undergo significant reform changes over the past two decades. Changing social services was necessary in order to provide support and assistance to individuals and families to improve the quality of life, to eliminate or mitigate the risk of unfavorable life circumstances, as well as to create opportunities to live independently in society. Thus, mainly the reform of the social protection system has imposed itself as a kind of inevitability due to broad social, and especially economic changes. However, some of the changes were motivated by alignment with EU practices or initiatives of the political parties to support specific groups of electorate.

However, although social security should include a clearly defined family support policy in addition to various forms of insurance, there is still no specific policy related to the family and no debate on whether it should be a special policy. On the other hand, the Law on Social and Child Protection defines the goal of social and child protection as improving the quality of life and empowerment for independent and productive life of individuals and families.

In the previous period, reforms went in the direction of introducing some rights, such as parental leave, but parental leave is still insufficiently used, which is a consequence of still insufficient control over the possibility of enjoying the rights prescribed by law. Moreover, there is currently no debate on the introduction of compulsory paternity leave, (despite some improvements through recent changes in labour legislation) and no incentive for fathers to use parental leave. Maternity leave benefit depends on the time of employment, which is also part of the legislation that could be subject to change in the coming period.

When it comes to the early development of children, the public kindergardens are still free, but a small number of parents use them. When child starts primary school there is the possibility of using extended stay. However, this institute did not come to life to a large extent in many schools, mainly due to the lack of either spatial, material or professional capacity of the schools themselves.

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6.

Original research paper

PUBLIC DEBT AND NATURAL RESOURCES

PUBLIC DEBT AND NATURAL RESOURCES

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ABSTRACT:

Many environmentalists believe that the high indebtedness of developing countries is caused by increased exploitation and unsustainable use of natural resources. This point of view is in favour of the supporters of the thesis about the "natural resources curse" which states that the countries which are rich in natural resources have lower growth rates than those which are not. However, some empirical studies suggest that this hypothesis should be abandoned. On the other hand, there are evidences of excessive exploitation of resource wealth in order to finance debt. The authors of this paper conclude that the financing of external debt leads to greater exploitation of resources.

Keywords: public debt, natural resources, external debt

1. INTRODUCTION

What is public debt and how is it defined? What role do natural resources play in relation to public debt? If we look at the legal definition, public debt represents the indebtedness of a state as a legal entity, while an ordinary citizen compares public debt to his own indebtedness. Thus, a state, like any individual, has its own revenues and expenditures. It is when expenditures exceed revenues that a state borrows, and the consequences for such a state are the same as for an individual who has a large amount of outstanding loans.

Public debt increases when a state borrows due to activities that are not productive, i.e. activities that do not create additional value from which its debt would be repaid in the future. The question is who bears the burden of a public debt? This is precisely

the question from which Buchanan starts in his analysis of public debt, primarily because in the period of its creation the Keynesian doctrine was represented (50's and 60's of the XX century) stating that the burden of debt is borne by today's generation. The most important representative of this attitude was an American economist Abba Lerner[1], who believed that the internal public debt does not create a burden for future generations. Lerner distinguishes between private and internal public debt, which he says is actually the debt of some citizens of one country to other citizens of the same country. This approach is nothing but moving resources from "one pocket to another". Consequently, domestic public debt does not change the level of spending of the next generation viewed as a whole. Buchanan's answer to this claim was that the burden of debt is borne by future taxpayers, that is, the cost of today's spending is not borne by those who finance spending today, but by those who have to repay that debt. Certainly, Ricardian equality is mentioned here, which says that the way of financing public spending is, under certain assumptions, irrelevant. Barro (1974) theoretically showed this attitude that the state cannot influence the economy by choosing financing, because taxpayers will compensate for this change.

For further analysis, is it necessary to distinguish between the concepts of public and external debt? Total public debt includes the debt of a unit of a government, both within the country and abroad, so there can be external and internal public debt. While the total external debt is the total debt of public and private sector of a country to foreign creditors (non-residents). The total external debt, in addition to the debts of the state, also includes the debts of banks and private companies. Domestic public debt is debt to domestic creditors. Its repayment represents a redistribution of purchasing power from taxpayers to those who have been creditors of government debt in the past. When the state borrows abroad, it is an external public debt. Being repaid, it leaves the country, the trade deficit grows, which can have serious consequences resulting in the loss of the productive capacity of the debtor's country.

Unlike man-made debt, natural resources are created in nature. They represent

[1]*Abba Lerner believes that fiscal stimuli, like monetary ones, can be used to manage demand and achieve full employment. He is convinced that public debt is not a problem, and that it is different from private debt, since private debt is owed to "others", while public debt is owed to citizens of "the same nation" (slogan "we owe it to ourselves"). According to Lerner, debt can be financed by new borrowing, and then by issuing money to the level that will provide the real interest rate needed to maintain the optimal rate of capital investment. It turns out that lending to the state activates funds, while not reducing private investment. Therefore, lending to the state does not diminish the amount of capital left to future generations (Musgrave, 1985; Haliassos and Tobin, 1990). Lerner defines generation as the sum of all people living in a given period.*

everything that we use from nature, which, due to its economic exploitation, can affect the debt of the state. Historically, the relationship between man and natural resources, i.e. the discovery of a new resource by man was the impetus for development. The paradigm of the functioning of the world has changed precisely thanks to the availability of "this new" resource. Thus, land, which was the basis in the agricultural era, was replaced by fuel in the industrial era, and now, in the information revolution, by information or ideas. We live in a global world where physical borders are not an obstacle to the transfer of information, thus, there is an increase in competition, but also in the organization of the economy on completely different postulates.

2. PUBLIC DEBT THROUGH HISTORY

"Debt has been unavoidable companion of people and their lives throughout history!"[2] Debt is older than money. Archaeologists have found and deciphered tablets on which the obligations (debt) of the rulers towards each other were stated in 3000 BC. For hundreds of years, perhaps even thousands, rulers "borrowed" to provide funds for warfare.[3] The first forms of public debt were recorded in the slave-owning societies, which were based on the rule of force, i.e. totalitarian rulers took money from their supporters without any obligation to return it. Most often, they took it for financing wars, the "spoils of war" were used to repay the debt taken, and rich temples and citizens appeared as lenders. By reducing the power of the rulers, the development of public debts slowed down. During feudal society, public debts were also used to finance wars. In that period, they were short-term loans with high interest rates due to the risk associated to the repayment of these loans.

State properties, i.e. sources of natural resources (mines, foundries, pastures, etc.) served as guarantees to lenders. During the middle Ages, the outbreak of wars affected the irregularity of revenues from state levies, and with the expansion of state functions, the administration became more complex, so large investments in military expenditures required increasing financial resources. The conduct of wars did not allow states to devote themselves sufficiently to basic state functions in order to stabilize the state and economic growth in order to provide sufficient revenues from taxes and other state duties. In such a situation, public debt becomes a significant source of government revenue to offset the deficit. In the XVII and XVIII

[2]*Vukotic, Veselin (2019) Christmas debates - Public debt and development, University Donja Gorica*
[3]*Why did people go to war? In the context of this paper, warfare is seen as a conquest for the wealth of natural resources that abound in "attacked" countries.*

century, there was a process of depersonalization of the state, i.e. the separation of the ruler's personality from the notion of the state, and consequently the separation of the state and the ruler's property. This primarily affected the maturity of public loans, which means that loans with perpetual and life annuities (France) and loans with lower interest rates due to reduced risk (England, Austria) began to appear. In addition, with the development of the financial and banking system, banks and large companies are involved in the process of financing the government deficit. Banks become not only lenders, but, through their mediation between the state and the lender, promote and develop new types of public debt. During the period of industrial development, during the XIX century, there was intensive borrowing abroad, with England, France and Germany standing out in Europe as the most important lenders. Foreign public debt was increasingly present in the balance sheets of countries such as Italy, Greece and Portugal, as a result of more favourable borrowing conditions. During the XX century, there was also a decline in interest rates, which ranged from around 10% at the beginning and 2.5-4% at the end of the century, and the most common forms of public debt were annuities with repayment of annual interest with the possibility of withdrawing the entire debt in any time. The First and Second World War, as the most significant features of the XX century, and the great economic crisis point to the increase of public debts in the structure of gross domestic products, especially in the countries that were direct participants in these events. In addition to military expenditures, which accounted for over 50% of the GDP of individual countries, public works that followed the end of the First World War were financed by public debts. This way of financing state activities has proven to be efficient and fast. What has contributed to the fact that today public debt is not an extraordinary source of state funding, but a permanent means by which governments achieve their goals?

And is debt a problem? The answer is probably negative from the consumer's point of view. On one hand, financial development and economic growth went hand in hand, i.e. debt provided the basis for investment and wealth creation. On the other hand, rising and falling prices, especially in property and real estate markets, bear historical evidence of the danger of debt. Excessive pro-cyclical lending, primarily by banks, has led to ongoing financial and economic crises. This duality points to the difference between "good" debt, which is related to investments in productive infrastructure that brings profit, and "bad" debt, primarily related to behaviour in the financial market. This duality creates a gap among public debt theorists.
One of the basic economic ties is the debt-to-income ratio. If that debt is invested in a business, it produces. As long as debt is viewed in the context of the income it produces, there is no negative impact on development. Theoretically, Schumpeter said that debt (credit) is dragging one's hand into future income and capturing future income. As long as these incomes from debt investment are greater than debt, debt is a stimulus to development. If a debt cannot be repaid from the income it produces, the debt becomes an obstacle to the development of both the company and the state. Debt refers to future income, and there is no future income without new investments, without innovation, without entrepreneurship. Debt, if it is developmental, makes us think about the future, about the development by means of which we repay that debt. Debt should be used for production, and not spending purposes. It should gain revenues in the future, thus creating additional value. In contrary, it is developmentally dangerous.[4]

In 1776, the father of economics, Adam Smith, warned in his book "An Inquiry into the Nature and Causes of the Wealth of Nation" that "when public debt rises to a certain (high) level, there is little chance that it will be fair and fully repaid." He also rejected the creditor's contempt for the debtor and the debtor's anger towards the creditor. Instead, Smith advocated organizing their relationship based on mutual respect, dignity and honour. In this way, he pioneered the understanding of debt as a voluntary transaction between individuals seeking maximum utility, rather than as a relationship dependency involving moral values. There is historical evidence that states as well as companies can go bankrupt. In the period from 1820–2013. 107 states declared bankruptcy to foreign creditors 248 times, according to a study by economists Michael Tomz and Mark Wright (2013).[6]

How can a state finance its debt, i.e. avoid bankruptcy? There are different ways. One possible way is to increase resource exploitation. In the next part of the paper, the ways of debt repayment will be presented using the wealth of resources as a pledge for debt. That is, the research question is whether higher external debt leads to greater depletion of resources?

3. PUBLIC DEBT AND NATURAL

[4]It is in the Balkans that pensions are financed from the debt, given that current number of workers per riteree is 1:1,87 (January 2022, accoding to data of Pension Fund of Montenegro). Given the fact that this ratio should be at least 1:5, Pension Fund is dependent on the state budget. Therefore, occasionally, it is funded from the debt. https://www.fondpio.me/statistika/
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RESOURCES THROUGH THE THEORY

How will a state pay its foreign debt? One of the potential ways, as has often been the case in history, is to "give" what the state has at its disposal to the lender. This primarily refers to natural resources, i.e. riches that can serve it to pay that debt. Therefore, the popularity of the Debt-Resources Hypothesis (DRH) should come as no surprise. In the further continuation of the paper, we will present the reasons for and against this hypothesis, i.e. whether the hypothesis stands or it has not been confirmed yet either in empirical research or in practice.

Calvert and Calvert (1999)[7], show that debt is the "leading force" to excessive exploitation of land and underground resources in order to increase foreign exchange earnings. In addition, Neumayer (2005) notes that the most important explanation for the debt-resource hypothesis (DRH) is that the country's high external indebtedness can trigger increased exploitation and use of resources because the country is forced to earn more and spend less to finance its debt liabilities, or at least, serviced interest on debts. This applies to developing countries, which in practice often give "priority to what can be easily produced", in other words, sell primary products at low prices on the world market. Overall, there have been several attempts to formally prove DRH.

Neumayer (2005) showed that there is no systematic empirical and quantitative evidence for DRH. The obtained empirical results do not confirm the hypothesis of debt reduction through increased resource exploitation, however, there is an ingrained suspicion that this hypothesis is potentially dangerous despite the lack of empirical evidence. Why is there such a doubt? First of all, because the causes and the very way of creating debt lead just to such a potential solution, but also the emergence of moral hazard and the phenomenon of "debt forgiveness" which may be possible on various grounds.[8] However, the Neumayer study has just shown that there is no reason to expect an increase in public debt to lead to a reduction in natural resources through their exploitation. For the purpose of his research, he referred not only to the works of Read (1992), Barrow (1995), and Pearce and authors

[7] *See more: Neumayer (2005)*

[8] *"In times of great adversity, debts should be let down," King Hammurabi said long ago. Throughout history, debt forgiveness has been a common category of relationship between creditors and debtors known and applied from the time of ancient Babylon, the Old and New Testaments to the present day. The rulers forgave the debts of their subordinates, but also the states to other states - their debtors. This paper states that King Hammurabi of Babylon in 1792. BC ordered that his compatriots be forgiven of all their debts to the state and officials. During the Ancient times and the Middle Ages, government debts were the cause of wars and numerous intrigues, only to become the subject of serious theoretical studies during the Industrial Revolution.*

(1995) who also came to the same conclusions, but also took into consideration the work of George (1989) who claims that high (external-external) debt is settled by depleting natural resources. However, Neumayer (2005) concludes that its result does not necessarily mean that DRH is wrong, because due to the lack of data, it cannot be fully examined, especially if we take into account that highly indebted countries may switch to unsustainable ways of resource exploitation, which is in favour of the fact that the debt will be settled by greater exploitation of resources. Therefore, this hypothesis should not be taken for granted, but with caution, especially the evidence indicating its non-existence.

Dutch disease is another economic concept that tries to explain the obvious connection between the exploitation of natural resources and the decline in the manufacturing sector, i.e. the impact on debt.[9] The creators of this theory Corden and Neary (1982) prove that the increased inflow of foreign exchange from the sale of natural resources (in this case gas) leads to a relative strengthening of national currency which negatively affects other sectors of export economics. Although the Dutch disease is most often associated with the sudden discovery of wealth with natural resources, it can also be associated with any other type of large inflow of foreign exchange, but also an increase in external debt. It is often treated as a wealth paradox, meaning that most countries with abundant natural resources, especially non-renewable resources such as minerals and fuels, tend to have lower economic growth and increased debt, compared to other countries that are not rich in natural resources. Proof of this hypothesis can be found by looking into oil-producing countries. For example, from 1965-1998, in OPEC countries, gross domestic product per capita decreased by an average of 1.3%, while in the rest of the developing world, per capita growth averaged 2.2% .[10]

Xavier and Arvind (2003) noted that wealth in natural resources (especially oil and minerals) has a negative and nonlinear impact on economic growth, especially in countries where institutions are not developed. However, even in such claims there is doubt, due to the problem of measuring institutional quality but also the problem of measuring natural wealth. Likewise, the distinction between institutional outcomes and institutional rules has been the subject of frequent debate in the literature. Authors such as Andersen and Aslaksen (2008) tried to answer the question which

[9] *The phenomenon of "Dutch disease" is the name for a set of economic consequences that occur with the specialization of the country according to its comparative advantage. The term was created in 1977 in The Economist to describe the decline of the Dutch manufacturing sector following the discovery of natural gas in the North Sea during the 1960's.*

[10] *Source: World Bank (www.worldbank.com)*

aspects of institutions are more important (rules or consequences-outcomes), and their analysis proved that countries with presidential democracies are more likely to become "resource-cursed" than those with parliamentary democracies, which require greater accountability and transparency.

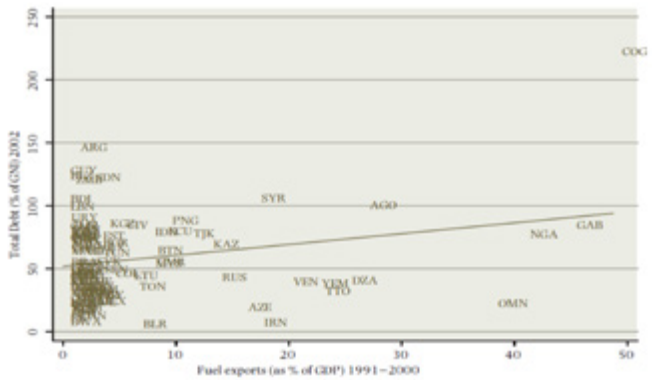
In an analysis of fiscal sustainability in oil-rich countries, Anchor (2007) noted that developing countries continue to "pay" because of their, so-called, sudden happiness due to the 1973-74 and 1979-80 oil shocks. Instead of prospering economically, many of them have become highly indebted with underdeveloped infrastructure and declining agricultural yields. These countries also have slow economic growth and high levels of poverty, but also a high burden of public debt.

According to Noreen (2004), global debt amounts are an equal "threat" to populations in both developed and developing countries. Debts are a particular threat to the population in poor countries because the authorities need to redirect national budgets to settle debt, rather than infrastructure and other investments that would be important for their development, which could lead to a crisis. In addition, debt threatens the citizens of developed countries, whose further prosperity depends on a stable global economy. Furthermore, Noreena claims that debt is a threat to the future of humanity, because governments contribute to global environmental degradation through the exploitation of natural resources to repay debts, and individual countries become politically unstable due to poverty and high inequalities, which can become a breeding ground for global terrorism.

Kretzmann and Nooruddin (2005) analysed the relationship between oil exploitation and debt. The survey included data for 161 countries in the period 1991-2002, in addition, they collected data for 80 developing countries for the period 1970-2000 for a statistical survey of public debt burden. Their results showed that an increase in oil production leads to an increase in debt, but also that an increase in oil exports also leads to an increase in debt. Also, their analysis showed that increasing oil exports improve the ability of developing countries to service their debts. The study further points to several factors that affect the relationship between debt and oil wealth. These factors primarily relate to structural incentives for direct investment in the oil industry through multilateral and bilateral institutions, such as the World Bank, but also factors of instability in the oil market and the fact that oil exploitation encourages fiscal policy.

If we look at resource-rich countries and the level of their external debt, such as

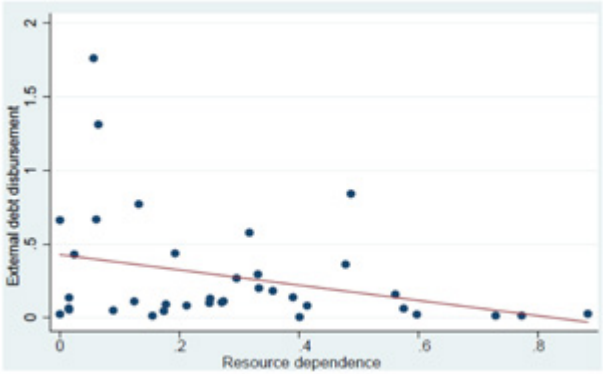
Figure 1 Ratio of oil exports to public debt of selected countries



Source: Kretzmann, Stephen; Nooruddin, Irfan (2005) *Driling into debt – an investigation into relationship between Debt and Oil,* Oil Change International, Jubilee USA Network, Institute for Public Policy Research, Milieudefensie, Amazon Watch

Mexico and Nigeria, we can see that they have high incomes from the wealth they have, but also have a high level of external debt, which leads to the conclusion that debt can be "settled". However, conflicting attitudes in academia based on historical economic examples of the "credit potential boom" but also the "burden of arrears" lead to the view that external debt is not harmful and destructive in itself.
To summarize, the author concludes that the process of resource exploitation itself

Figure 2 Resource dependence and external debt, 2016



Source: Demachi, Kazue (2018) *New African Debts and Natural Resource Dependence,* JSPS Seminar, Aarhus University, Denmark

leads to the appreciation of the real exchange rate. The appreciation of the real exchange rate leads to a more sensitive production sector, i.e. it creates foreign exchange reserves that can be a threat to decision makers if they are not used in the right way. This task is challenging for politicians, because only "wise" policy-making can lead a country to economic prosperity. Wealth of resources with high external debt is not the only reason for the weakening of the productive sector, but it is the main obstacle, which becomes the main reason for the national policy of industrialization. If a country's exports and economy are diversified, then deindustrialization is not a problem. However, most countries do not have a diversified economy, but production based on conventional labour, research and innovation, so the issue of external debt financing is of great importance.

4. METHODOLOGY OF THE RESEARCH

It is on the basis of the models set by Kretzmann and Nooruddin (2005) that a panel study was conducted in this paper. First of all, we started by determining the variables that affect external debt. Based on empirical analysis, an attempt was made to capture the effect of external debt on the exploitation of natural resources. The theoretical framework for this study is based on the empirical work of the aforementioned authors using the following model that shows the relationship between resources - oil and debt.

$$D_{it}=D_{it-1\alpha}+\beta_1 oil_{it-1}+\beta_2 X++\nu_i+\varepsilon_{it}$$

However, in order not to limit ourselves to oil, this paper used resource rent as a share of GDP to replace this variable, so the dynamic panel model used in the analysis is given by the following equation.

$$D_{it}=\beta_0+\beta_1 D_{it-1}+\beta_2 NR_{it-1}+\beta_3 X_{it-1}+\nu_i+\varepsilon_{it}$$

Where D_(it-1) is a measure of debt for country I; NR_{it-1} is a measure for natural resources debt, X_(it-1) i is a set of other variables that might affect debt; ν_i are random effects that are independently and identically distributed, ε_it random sample is a sequence of independent, identically distributed (IID) random variables.

Therefore, we use the system GMM estimator to analyse the external debt stock data and the Difference GMM estimator to analyse the debt service burden data. In both cases, we utilize the one-step version of these estimators and restrict the set of instruments to three lags.

The model set up in this way was evaluated using the Generalized Method of Moments (GMM) method, covering the period from 1995. to 2015. for 82 countries due to the limitations of the Ordinary Least Squares (OLS) model, previously used in the literature.[11] The evaluation of Arellano-Bond dynamic panel data uses the following instruments: levels of a dependent variable that is "late" two or more periods, as well as levels of endogenous variables that are also "late" two or more periods, i.e. the first derivative of strictly exogenous covariance's own instruments. Consequently, the dynamic nature of economic growth as a dependent variable is unquestionable, with the characteristics of the sample of this type of research, so the model was evaluated using the GMM method, more precisely Blundell and Bond (BB) two-step estimator (1998).[12]

5. RESULTS AND DISCUSSIONS

The analysis included descriptive statistics for all variables. Before evaluating the model, it is necessary to check whether there is a problem of multicollinearity between independent variables. In the analysis of the panel model, there is no classical statistical test for this problem, so according to Baltagi's recommendations, a correlation matrix is calculated with the help of Stata 14.0. Table no. 1 represents the Pearson correlation coefficients between the independent variables. Following Gujarati and Porter's suggestion, a serious problem of multicollinearity exists if some of Pearson's correlation coefficients between two independent variables in the model exceed 0.8.[13] In the presented model, the correlation coefficients for two variables: rule of law and government efficiency exceed this coefficient. Therefore,

[11]Taking into account the availability of data for countries rich in natural resources but also data for other independent variables. The database used for the share of resource rents in GDP is the World Bank. Furthermore, the OLS estimation is not possible due to complications that would arise, i.e., in the settings of both fixed and random effects, the difficulty is that the time "delay" of the dependent variable is related to the error term, even assuming only "delay" not auto correlated. If the number of observations per country is small, estimates of fixed or random effects will be inconsistent. Since we have, a maximum of 21 observations per capita in estimates for annual growth rates per capita, t should be treated as small, which means that OLS estimates will not be effective. Arellano and Bond (1991) developed an evaluation of the Generalized Method of Moments (GMM) that solves the aforementioned problems.

[12]As Baltagi explains, the one-step evaluator (Arellano-Bond) assumes that the residuals are independent and homoscedastic between countries and in the observed time period, while the two-step estimator diminishes these assumptions of independence and homoscedasticity is from the appraiser in one step). This model is particularly suitable for the analysis of linear relationships in which the dependent variable is dynamic (external debt) and in which the independent variables are not strictly exogenous.

[13]Gujarati, D. N., & Porter, D.C. (2008) Basic Econometric. 5th Edition. New York: McGraw-Hill/Irwin

it will be excluded from the model, while other values are far below critical, so it can be concluded that the condition of no multicollinearity in the model is met.

Table 1. Correlation matrix of pairs of model variables

	1	2	3	4	5	6	7	8	9
1 External debt (% of GDP)	1								
2 GDP growth rate pc	-0.1192	1							
3 Resource rents (% of GDP)	-0.1466	-0.0468	1						
4 Gross domestic investment (% Of GDP)	-0.1538	0.2445	-0.01	1					
5 Human capital	-0.2284	0.0478	-0.1236	0.139	1				
6 Terms of trade	-0.1488	0.0601	0.4933	0.0784	0.0015	1			
7 Corruption control	-0.1129	0.0306	-0.39	0.2451	0.1388	-0.118	1		
8 Rule of law	-0.1232	0.046	-0.4375	0.2563	0.1535	-0.1748	0.8403	1	
9 Government efficiency	-0.1819	0.0691	-0.4807	0.2721	0.155	-0.1117	0.8137	0.843	1

Also, before analysing the model, diagnostic tests were conducted to determine the validity of the model.[14] The null hypothesis assumes that the selected instrumental variables are uncorrelated with residuals. If the null hypothesis is not rejected, all conditions are met and all the listed instruments are valid. If the null hypothesis is rejected, some of the predictor variables are correlated with residuals, i.e. there is a problem of endogeneity in the model. The introduction of additional instrumental variables gains on the efficiency of the assessor, but the assessor becomes biased. Therefore, the optimal number of instruments should be chosen so that the null hypothesis of the Sargan test is not rejected, while at the same time increasing the bias of the evaluator insignificantly. The *p-value* of the Sargan test met the condition (> 0.05) which confirms the validity of the selected instruments. The null hypothesis of m1 and m2 tests says that there is no problem of first and second order autocorrelation and that there is no wrong model specification when there is no second order autocorrelation. As the *p-value* of the m2 test is 0.0003 the null hypothesis of the m2 test is not rejected, which confirms that the model is well specified. Finally, the coefficient of the lagged variable is positive and statistically significant, which confirms the appropriateness of choosing a dynamic panel model. The model of external debt determinants was estimated with the help of the statistical program Stata 14.0. The research confirmed the authors' hypothesis about the existence of DRH, that is, due to the increase in external debt, there is a decrease in growth and a decrease in resource rents, i.e. there is a greater exploitation of resources. States finance their external debt by selling primary products. The time-delayed dependent variable is statistically significant and has a positive sign. The research showed that higher external debt leads to a reduction in resource rents, but the rate of economic growth or variable growth rates and the share of resource rents in GDP are statistically significant in the model, and their coefficients have the expected negative signs.

[14]*The panel analysis uses the Sargan test and two first- and second-order autocorrelation diagnostic tests among the first residual deviation differences (better known as m_1 and m_2), established by Arellano and Bond (1991), as diagnostic validity tests for dynamic panel model assessment instruments. The Sargan test serves to re-identify constraints. The introduction of each new instrumental variable adds a new constraint that must be met.*

6. RESULTS AND DISCUSSIONS

This research excludes sustainable development policies, which are primarily aimed at preserving natural resources and habitats. A potentially serious problem can be the time when the research was conducted since its focus is primarily on common, normal conditions, but not on shock conditions and external factors such as the COVID-19 pandemic, wars, and similar. Also, this research does not include socio-cultural factors, in the context of not going deeper into the analysis of social conditions that encourage the consumption of natural resources in order to settle public debt. The misuse of natural resources is one of the indicators of the crisis in society (let's start with the Roman Empire- it is believed that the exploitation of natural resources led to natural disasters, which resulted in the collapse of the Roman Empire). Is that the case with today's world?

7. CONCLUSION

A review of theoretical predictions and previous empirical research has shown that higher external debt affects the exploitation of natural resources. However, the detailed mechanisms through which individual institutions influence different

outcomes are rather unclear, and the empirical literature in this area faces a number of challenges. The results of the econometric analysis conducted in this paper show that, statistically, resource rents and GDP growth rates have the most significant impact on external debt, but also the (in) stability of political systems, which is in line with results of research conducted so far. The high debt burden hinders any opportunity for long-term growth and development of a country. Yet, getting out of indebtedness has proven impossible since governments have been unable to mobilize sufficient domestic resources to liquidate the debt. In the absence of excess of domestic resources, they are left with three options: to pump more natural resources and mortgage the future of their countries to pay the debt today; borrow more to pay off their loans; or generate arrears and worsen their external debt situation.

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7.

Review paper

THE EFFECTS OF GLOBAL CLIMATE CHANGE: FROM BIODIVERSITY LOSS TO DISRUPTION OF FINANCIAL FLOWS

THE EFFECTS OF GLOBAL CLIMATE CHANGE: FROM BIODIVERSITY LOSS TO DISRUPTION OF FINANCIAL FLOWS

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ABSTRACT:

"Climate change is one of the major challenges of our time" (Adedeji, Reuben and Olatoye, 2014, p. 114). It has already affected every region on the planet, in an unprecedented and irreversible way. Regardless of whether climate change is a phenomenon induced by human activity or the result of natural processes, in terms of economic analysis it is a negative externality. The only way to limit global warming is zero net CO2 emissions. In 2015, the Paris Agreement was signed, aiming to keep the global temperature growth below 2°C, with the efforts to limit it to 1.5°C, compared to the pre-industrial period. The climate crisis is inextricably linked to the biodiversity crisis, so solutions for overcoming both are also connected. The duality of climate change and biodiversity loss is one of the biggest risks to the world economy and financial system. However, these interrelationships between climate change and biodiversity loss are not recognized in existing financial risk models, investment decisions and risk management processes. Today's megatrends, turned towards green transition and digitalization, require the creation of a "green" model of economic growth and development and the introduction of the concept of "sustainable finance", all in the context of global decarbonisation and energy transition.

Keywords: climate change, biodiversity loss, green growth

1. INTRODUCTION

Although planet Earth is about 4.6 billion years old and has been inhabited by millions of living beings for 3.5 billion years, environmental issues are constantly changing and continuing to fascinate. The first human impacts on the environment began with the use of fire during the *Pleistocene geological era*. The current geological era of the *Holocene* began when the Earth began to warm up after the last ice

age. However, for decades, international geoscience circles have considered the beginning of a new era of the *Anthropocene* in which, unlike most of human history, there is a relatively "*complete domination of man*" over the climate and ecosystems of the planet. The word "anthropocene" comes from Greek words *anthropo* ("man") and *cene* ("new"). According to National Geographic (n.d.), "the term has not yet been formally adopted by the International Union of Geological Sciences until it is determined whether humans have changed the system of planet Earth to such an extent that it is reflected in the layers of rocks". A number of scientists believe that the Anthropocene began with the Industrial Revolution (1760-1840), which dramatically increased the concentration of carbon dioxide (CO2) and methane (CH4) in the atmosphere, as well as emissions of other gases.

The period from 1945 when the first atomic bomb was dropped on Hiroshima and Nagasaki in Japan, as a result of which the resulting radioactive particles were discovered in soil samples globally, is marked by infrastructural renewal after the World War II and the so-called "*Great acceleration*". This term implies accelerated population growth and increased human activities that have affected the planet, technological development, as well as a stronger pace of energy use and gas emissions. These are the factors that have influenced the transformation of the relationship between nature and man most, and they happened in a timespan of only 60-70 years. It was not until the 1970's that we began to realize that development goals were closely linked to environmental limits.

In the global economy of the XXI century, preserving the environment and the urgency of combating climate change are some of the key factors in shaping economic development, which must adapt to environmental constraints. Phenomena such as climate change, global warming, ozone depletion, greenhouse gas (*GHG*[1]) accumulation, biodiversity loss, destruction of tropical forests, rainforests and wetlands, species extinction, ocean and freshwater pollution, groundwater abstraction, are increasingly dominant. In this regard, globalization has opened up the issue of adequate management of global common property, and the term "*Tragedy of Commons*" introduced in 1968 by *Garrett Hardin*, a professor at the University of California, is becoming more and more prominent. Effective global action on this issue requires international cooperation and seeks local, regional and global solutions.

[1]Many gases behave as GHG. Some are natural, while others exclusively arise under the impact of humans (e.g. industrial gases). The basic GHGs are the following: CO2, CH4, nitrogen dioxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF6).

2. THE PHENOMENON OF GLOBAL CLIMATE CHANGE

As defined by the United States Environmental Protection Agency (n.d.), "climate change is any significant change in climate (temperature, precipitation or wind) that lasts for a long period of time (decades or longer)". The cause of climate change should be sought in: natural factors (changes in solar intensity or slow changes in Earth's orbit around the Sun), natural processes within the climate system (e.g. changes in ocean currents), but predominantly in human activities that change the composition of the atmosphere (combustion of fossil fuels) and land area (e.g. deforestation, urbanization, desertification, etc.).

The Earth's climate is always changing. As explained by Harris et al, "the global GHG effect, in which the Earth's atmosphere behaves like a glass in a greenhouse, was for the first time described in 1824 by the French scientist *Jean Baptiste Fourier*[2]. The possibility of an increased or anthropogenic GHG effect was pointed out in 1896 by the Swedish scientist *Svante Arrhenius*, who hypothesized that increased coal combustion would cause an increase in the concentration of CO2 in the atmosphere and warm the Earth" (Harris et al, 2015, p, 5). Compared to the level from the pre-industrial period, the concentrations of CO2 in the atmosphere have increased by 40%. In addition to increased combustion of fossil fuels (coal, oil and natural gas), man-made chemicals (e.g. CFC-chlorofluorocarbons), as well as CH4 and nitrogen oxides (NOX) emissions from agriculture and industry have contributed to an increasing GHG effect. "GHGs remain in the atmosphere for decades or even centuries, affecting the Planet's climate long after they are emitted (*so-called "pollution stocks"*)" (Harris et al, 2015, p, 4), making them negative externalities on planetary level. Climate change can also be seen as an issue of a public good (meeting the criteria of *non-exclusion* and *non-competitiveness* in "consumption") and an example of the overuse of common resources. Two types of measures can be taken in response to the climate change: *mitigation measures*, which tend to reduce or mitigate the GHG effect, and *adaptation* measures which deal with the consequences of the GHG effect and minimize their impact.

GHG emissions are constantly rising and show no signs of reaching their peak. In 2019, they were higher by 62% than in 1990, when for the first time the *Intergovernmental Panel on Climate Change of the United Nations (IPCC)* called for coordinated action, and

[2]Clouds, aerated water and natural gases that cause the GHG effect allow solar radiation to enter the atmosphere, but they also serve as a barrier that prevents the Earth's infrared heat from escaping. This creates a natural GHG effect that allows life on the planet. Without it, the average temperature on the planet's surface would be around -18°C (0°F), instead of approximately 15°C (60°F). (Harris et al, 2015, p, 5)

higher by 4% than in 2015, when the Paris Agreement was signed under the *United Nations Framework Convention on Climate Change (UNFCCC)*, with the aim of maintaining global average temperature growth below 2°C, and giving the efforts to limit this growth to 1.5°C, compared to the pre-industrial period. "The Paris Agreement is based on the scientific assumption that growth below 2°C of average temperature is the threshold of the absolute maximum that allows humans to continue living on the planet Earth" *(PricewaterhouseCoopers, 2020, p, 19)*.

The Sixth Assessment Report, as the most comprehensive report on climate, published by the IPCC in 2021, indicates that humanity has a devastating impact on the climate. Many of the observed changes are unprecedented in thousands, if not hundreds of thousands of years. Any additional increase of 0.5°C will increase the intensity and frequency of extreme weather events (droughts, fires or floods), including areas where this has been uncommon in the past. Rising temperatures mean more melting of ice and higher sea levels.[3] As summarized by King (2021), the key conclusions of the Report are as follows:

- **"The global temperature of land was 1.09°C higher in the decade 2011-2020, than in the period 1850-1900;**
- **The past five years have been the warmest since 1850;**
- **The recent rate of sea level rise has almost tripled since 1901-1971;**
- **Human influence is "very likely" (90%) the main driver of global glacier retreat since the 1990's and the decline of the Arctic sea ice;**
- **It is almost certain that heat waves have become more frequent and intense since the 1950's, while cold events have become less frequent and less serious."**

The adverse effects identified by the Sixth Assessment Report are as follows:

- **According to the each of the five scenarios in the Report, the world will exceed the warming limit of 1.5°C in 2030.**
- **In three scenarios, it will exceed 2°C compared to the pre-industrial period with far worse heat waves, droughts and showers causing floods.**
- **The Arctic is likely to be ice-free in September at least once before 2050 in all scenarios.**
- **Some extreme events "unprecedented in history" will occur more often, even when warming is up to 1.5°C.**
- **Extreme events at sea level, which occurred once in a hundred years in the recent past, will occur at least annually at more than half of the locations where tidal levels are measured by 2100.**
- **The fires are likely to occur in many regions.**

According to Hepburn et al, "the climate emergency is like the covid-19 emergency, only in "slow motion" and much more serious. Both include: externalities, multilateral solutions and coordinated global cooperation, complex science, system resilience, political leadership and action that depends on public support" *(Hepburn et al, 2020, p, 4)*. "The only way to limit global warming is zero net CO2 emissions, for which humanity must abandon coal use during this critical decade, switch to clean energy sources, protect nature and provide climate finance" *(King, 2021)*. According to the IPCC, Governments have only 30 years left to radically reduce global emissions before the planet faces a series of dangerous turning points.[4] However, the current third decade of the XXI century, which is planned to mark the beginning of the process of global decarbonisation, e.g. achieving climate neutrality, is characterized by: the covid-19 pandemic, energy crisis and security risks.

[3]„The island nation of Kiribati faces the risk of being submerged in the next few decades. The situation is so serious that Kiribati leaders are considering a plan to relocate the entire population of 100,000 to Fiji (Harris et al, 2015, p, 13)".

[4]In December 2019, the European Commission adopted European Green Deal, as a comprehensive roadmap aimed at making the EU a sustainable and climate-neutral economy by reducing GHG emissions (55% by 2030 compared to 1990 levels and 0 net emissions by 2050). Also, in July 2021, it proposed the Climate Package "Fit for 55", which concretizes the activities of the entry of climate policy into the daily life of citizens and companies.

3. RELATIONSHIP BETWEEN CLIMATE CHANGE AND BIODIVERSITY LOSS

According to the *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services of the United Nations- IBPES (2019)*[5], out of the 8.7 million of estimated plant and animal species *(Mora et al., 2011)*[6], about 1 million are at risk of extinction by 2050, which would have fatal consequences for the planet's health and destroy nature's ability to provide vital goods and services. About 75% of the terrestrial environment and about 66% of the marine environment have been significantly altered by man's growing needs for food, energy and infrastructure. In the last 40 years, the global wildlife population has shrunk by 60%, which is often referred to as the *"sixth mass extinction"*. IBPES points to the erosion of biodiversity across the planet Earth caused by the changes in the use of forests, land, seas and oceans, exploitation of natural resources, climate change, pollution and invasive alien species. The Amazon rainforest could turn into savannah, and billions of tons of CO2 could spill out of Siberian permafrost. Some regions, including eastern Brazil, Southeast Asia, the Mediterranean and central China, will inevitably face multiple climate disasters simultaneously, including drought, heat waves, cyclones, fires and floods. In this regard, the IPCC and IPBES reports indicate that the combination of climate change and biodiversity depletion puts society on the path to environmental collapse.

The biodiversity crisis is inextricably linked to the climate crisis. Through rising sea levels, chronic drought, more intense and frequent heat, fires, floods, hurricanes and cyclones, climate change is accelerating the destruction of the natural world. This has an impact on human health, food security, economic stability and population displacement. With more frequent and intense extreme weather events, species must adapt, migrate, or disappear, which reduces the resilience of ecosystems to respond to various shocks, increases their vulnerability and leads to biodiversity degradation. This loss and unsustainable use of biodiversity again encourages climate change, because it reduces the ability to adapt and the ability to capture and store CO2, and increases GHG emissions. Therefore, maintaining global warming at 1.5°C is the key to preserving biodiversity.

Just as crises are connected, so are solutions to get out of them. "Nature is the strongest ally in the fight against climate change" *(Donets, O, 2021, p, 72)*. "It regulates climate, and natural solutions, such as protection and restoration of wetlands, peatlands and coastal ecosystems or sustainable management of marine areas, forests, grasslands and agricultural areas, will be key to reducing emissions and adapting to climate change, while afforestation and green infrastructure help cool cities and mitigate the effects of natural disasters" *(European Commission, 2020, p, 2)*.

Nature-based solutions can provide effective measures to mitigate climate change through the protection of the CO2 sinks. "Recent science shows that natural climate solutions can provide about 37% of cost effective CO2 mitigation through 2030" *(Griscom et al., 2017, p, 11645)*. "Marine and terrestrial ecosystems are the only sinks for anthropogenic CO2 emissions, with gross sequestration of 5.0 Gt CO2 per year, equivalent to 60% of global anthropogenic emissions" *(Ipbes, 2019, p, 12)*.

4. FINANCIAL RISKS FROM CLIMATE CHANGE

The duality of climate change and biodiversity loss is one of the biggest risks for the world economy and financial system, which can leave the world vulnerable and exposed to, not only environmental, but also developmental, economic, social and security problems. Just as the bankruptcy of a systemically important institution in an economy is a risk for the collapse of the economic system *("Too Big to Fail")*, so is the degradation of nature for the destruction of the ecological system, and thus the economic system and life on Earth *(„Nature is Too Big to Fail")*. However, the interrelationships between climate change and biodiversity loss are not recognized in existing financial risk models, investment decisions and risk management processes. Simultaneous failure to solve the problem of climate change and biodiversity degradation, as a phenomenon of *"negative spiral"*, underestimates their financial implications, which consequently includes significant financial consequences.

The increasing frequency of serious climate events can, through permanent damage to infrastructure, weaken basic macroeconomic indicators (GDP, consumption and employment). A number of anthropogenic changes in nature also have had adverse financial effects, such as the loss of production, *falling real estate and stock prices, and deteriorating banking conditions (Bassen et al, 2019)*. For example, "if a country or region experiences significant degradation of natural capital stocks and flows, capital may rapidly flow from this area as investors reallocate current and planned investments, divest from assets, or firms reorient operations to new nodes of production with adequate resources or reliable flows." *(Caldecott and McDaniels, 2014, p, 16)*. This is a special macroeconomic risk for the economic growth, stability and price of public

[5]*Global Assessment Report on Biodiversity and Ecosystem Services (2019)*
[6]*Of these, only about 2 million have been recognized and named (Raven, 2020, p, 13).*

debt in economies that rely on natural resources, and are the most sensitive to risks associated with nature.

Since 2006, when the *Stern Report (Economics of Climate Change)* was published[7], it has become clear that climate risks are also financial risks that financial actors (central and commercial banks, insurance companies, pension funds and asset managers) in the risk management process need to assess at the aggregate level, model interactions with the economic and financial system and mitigate them by affecting the causes.[8] This has also become a regulatory requirement. Article 2.1 of the Paris Agreement sets out the obligations of the financial sector and the Government to *"adjust private and public financial flows and subsidies to low GHG emissions"* and climate-resilient development, which makes climate financing one of its main objectives.[9]

As stated by Dasgupta, "There are huge time gaps for financial entities before changes in natural capital become obvious and irreversible, so the most harmful effects will be felt outside the time horizons in which financial entities operate. The physical impacts of changes in natural capital will be felt in the long run, with potentially significant costs, while the time horizon in which financial entities plan and operate is much shorter" *(Dasgupta, 2021, p, 426)*. As long as the risks posed by unsustainable use of the biosphere are not reflected in market prices (not "internalized"), there will be little incentive to include these risks in financial decisions.

Investors are seeking bigger clarity on which economic activities are considered environmentally sustainable, as the lack of uniform criteria increases costs and discourages economic operators from accessing cross-border capital markets for sustainable investment[10]. "Systems that classify such activities or *"taxonomies"* help investors to identify opportunities for green finance and provide them with a transparent list of potential green investments" *(International Platform on Sustainable Finance, 2020, p, 22)*. Taxonomy also has a broader purpose outside of financial markets, as it directs public investment, financial flows and reduces/eliminates

[7]*"Economics of Climate Change: Stern Report", by former Chief Economist of the World Bank Nicholas Stern, is one of the most influential climate studies, because it significantly changed debate on economics of climatic change. It estimates that „if no action is taken, the total cost of climate change will be equal to a loss of at least 5% of global GDP each year, now and forever. In contrast, the cost of action (reducing GHG emissions) to avoid the worst impacts of climate change can be limited to about 1% of global GDP each year". (Stern, N, 2006, p, 2). This benefit-cost ratio of at least 5:1 implies strong economic argumentation for immediate action.*

[8]*According to Schoenmaker, D. (2021), the European Central Bank (ECB) is a brown central bank, due to portfolio bias towards those companies that emit CO2 intensively, such as oil and gas companies and car manufacturers.*

[9]*The ECB has committed to assessing climate risks in its "stress tests" in 2022. The first central bank to conduct this "stress test " was De Nederlandsche Bank (Bank of the Netherlands).*

[10]*Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020*

taxation towards activities that promote the achievement of environmental goals and facilitate the supervision of green practices of financial institutions.

The EU, China and India have established taxonomies. Alignment with the EU taxonomy is also envisaged in the European Investment Bank's Plan for Transformation into the Climate Bank 2021-2025. The European Bank for Reconstruction and Development is also reviewing its internal green finance monitoring systems according to the six EU taxonomy environmental targets[11]. "Unlike China and India, where taxonomies are binary (green or non-green activities), the EU taxonomy covers different shades of green/brown activities and the category of "transitional" activities, including sectors that are not low-carbon today but where the goals are to move to lower emissions" *(International Platform on Sustainable Finance, 2020, p, 25)*.

A common taxonomy at the global level should provide transparency for investors and companies, making a single common reference point for defining investments that are considered relevant to the environment. This would help reduce transaction costs, facilitate cross-border green capital flows, provide a basis for developing an integrated sustainable financial market and significantly contribute to global green finance growth through capital mobilization to the extent and speed needed to achieve the Paris Agreement goals.

5. CONCLUSION

"Climate change is one of the major challenges of our time" *(Adedeji, Reuben and Olatoye, 2014, p. 114)*, due to which the planet is warming at a precedent rate. It has already affected every region on the planet Earth, in an unprecedented and irreversible way *(IPCC, 2021)*. Over the past three hundred years, rapid economic growth and increased energy use have had an increasing and significant impact on the environment. Regardless of whether climate change is a phenomenon induced by human activity or the result of natural processes, it is in terms of economic analysis a negative externality with broad impacts, and must be taken into account when analyzing market trends at the global level. Namely, the economic activity of a country can cause *transboundary* or *global pollution*. In doing so, the national product of the country that creates the pollution may remain unaffected, but the damage inflicted on other countries must be taken into account.

[11]*"(a) climate change mitigation; (b) climate change adaptation; (c) sustainable use and protection of water and marine resources; (d) transition to a circular economy; (e) pollution prevention and control; and (f) protection and restoration of biodiversity and ecosystems" (European Commission, 2021).*

The interrelationship between the climate change and biodiversity loss has significant consequences for the environment, health, food and water safety, human security and economic development. For example, over the past decade, weather disasters have caused an estimated displacement of about 23 million people on average each year, and migratory pressures will only increase. By 2050, over 200 million people could seek humanitarian assistance each year, in part due to climate disasters[12]. Given the current state and trends and the prospects for human development, there is no room for indifference and failure to take further serious action at the global and national levels. Consideration of the new paradigm is justified, because the global reality has changed radically compared to the previous period. Today's megatrends, aimed at green transition and digitalization, require the creation of a "green" model of economic growth and development and the introduction of the concept of "sustainable finance"[13], all in the context of global decarbonisation and energy transition that is likely to reshape the global order.

The Glasgow Climate Pact from November 2021 plans gradual reduction of the use of coal, the worst fossil fuel for the GHG effect, which has been the backbone of economic development globally since the beginning of the industrial era. Coal accounts for about 40% of CO2 emissions each year, making it crucial in keeping the temperature rise at 1.5°C. This pact also obliges countries to urgent reduction of emissions of other GHGs and increase of financial allocations for developing countries in order to help them adapt to climate impacts. This includes innovations needed for changes in energy production and use, technologies that improve energy efficiency, renewable energy sources and related infrastructure, and forest expansion and modification of agricultural techniques. In addition, adaptation to climate change is the key to reducing current and future climate risks in a cost-effective way in key sensitive sectors (agriculture, fisheries, etc.). Clear recognition that coal is the biggest problem, gave the hope that the beginning of the end of climate change has begun. According to the critics of the Glasgow Climate Pact, due to the avoidance of explicit ban on the use of coal, at this time there is no certainty that in 2050 there will be a turnaround in the relationship between man and nature, as well as what the planet Earth will look like in 2100, as a result of which the coming years unfortunately are threatened by the new climate uncertainties.

[12]International Committee of Red Cross and Red Crescent Societies, 2019. The Cost of Doing Nothing
[13]There are a number of mechanisms and instruments that fall under "sustainable financing", and primarily include: green bonds, green loans, private investment funds that support biodiversity and other products (The Nature Conservancy, 2019; Deutz et al. 2020; OECD, 2020b). „Demand for green sukuk (green Islamic bond - a bond that adheres to the principles of Islamic law (Sha'riah)) is growing across markets in the Middle East, Africa and Southeast Asia" (International Platform on Sustainable Finance, 2020, p, 14). „The sustainable finance is increasingly shaped by digital innovation in the financial sectorœ (International Platform on Sustainable Finance, 2020, p, 21).

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