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IMPACTS OF CHATBOTS ON THE ACCOUNTING SERVICE INDUSTRY

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Abstract. *The integration of chatbots into the accounting services industry has become increasingly popular, and their adoption rates are expected to almost double in the next two to five years. Chatbots can automate routine tasks, allowing accountants to focus on more complex and client-oriented work, and AI-powered chatbots can provide more accurate data entry and reduce the time spent on manual tasks. However, their successful implementation requires consideration of a range of challenges. These include integration with existing systems and processes, data privacy and security concerns, ensuring accuracy and consistency in responses, and managing customer expectations and trust. The financial industry is increasingly turning to the use of chatbots for customer support and sales. The global conversational AI market is expected to grow significantly in the coming years. The analysis of the answers given by ChatGPT highlights both positive aspects: the generation of acceptable answers to questions of a theoretical nature; compiling information very well from various available information sources; providing answers to all questions asked; as well as negative aspects: making erroneous calculations when asked to solve practical problems that require a selection of information from different sources available; the elaboration of correct but incomplete answers for the cases in accounting; and the use of this tool in accounting.*

Keywords: *ChatGPT, accounting profession, accounting information systems*

INTRODUCTION

During human evolution, small improvements constantly appear, in a process of continuous innovation. But there are also moments of rupture when technology can suddenly and radically change things in several areas. We are currently experiencing such a change, with the launch of the ChatGPT application, which represents an artificial intelligence system capable of conversing with people in natural language. The system was taught to answer questions, being trained with all the information that exists as text on the internet – at the time of 2021.

ChatGPT was developed by OpenAI and is considered one of the most advanced chat systems in the world. With over 100 million users in the first two months after its launch, ChatGPT has become not only the most successful conversational artificial intelligence model but also the application with the fastest rate of adoption in human history (Dowling & Lucey, 2023).

This evolution of artificial intelligence systems represents a paradigm shift in human-machine interaction embodied in the way people search for information on the Internet. In this sense, there is fierce competition between Google and Microsoft companies that want to integrate these tools into search engines and thus win a significant market segment (Vasile, 2023). The key concepts identified in the literature that are related to ChatGPT technology and are used throughout the paper are: GPT - artificial intelligence broad language model (LLM) developed by OpenAI, based on a neural network with 175 million parameters able to produce text responses that are identical to those provided by the human factor (A. Shaji George et al., 2023); ChatGPT is an extension of GPT technology, used to produce dialogue with the user (Lund & Wang, 2023).

Given its recent launch into the Internet space, academic studies on ChatGPT are still in their infancy. Our goal is to assess the capabilities of this tool when used within the work of accounting professionals, thus strengthening the idea of a first-line tool, in which the human factor can eliminate tedious, time-consuming tasks.

Going beyond the area of clarifying the theoretical notions regarding ChatGPT, in section 2 we will describe the research methodology and debate the assumed research objectives, in section 3 we will present the results obtained based on the questions introduced in ChatGPT, and in section 4 we will present the conclusions of the experiment carried out and at the same time the opportunities and limitations of using this tool.

I. Methodology

The article focuses on a study carried out intended to highlight the extent to which ChatGPT can help accounting professionals in carrying out the activity. This is in the sense of improving the time allocated to solving specific problems. Consequently, financial-accounting activity could become more efficient, as the ratio between simple, repetitive, routine tasks and more complex tasks, analysis, and consulting will shift.

The empirical study envisages a simulation of the integration of the AI tool in the existing IT systems within economic agents, a discussion on the opportunity to perform the professional duties of accounting professionals with AI tools, and ends with a session of questions related to aspects in the area of accounting and answers provided by ChatGPT. The questions were formulated by academic staff within the university and they also checked the consistency, logic, and usefulness of the answers provided by ChatGPT.

Summarizing, the objectives of the present study boil down to verifying the following research hypotheses:

- Is ChatGPT a tool that can be integrated into the activity of economic departments?
- Is AI technology (including ChatGPT) a driver of innovation within the accounting profession?
- Are the answers provided by ChatGPT correct in terms of content and applicability?

I.1. Integration of the ChatGPT tool into economic management IT systems

Economic management information systems (IS) have seen a permanent evolution conditioned by technological progress, starting with spreadsheets, moving to stand-alone information systems, ERP-type systems, and finally to AI (Jang et al., 2021). The strategic

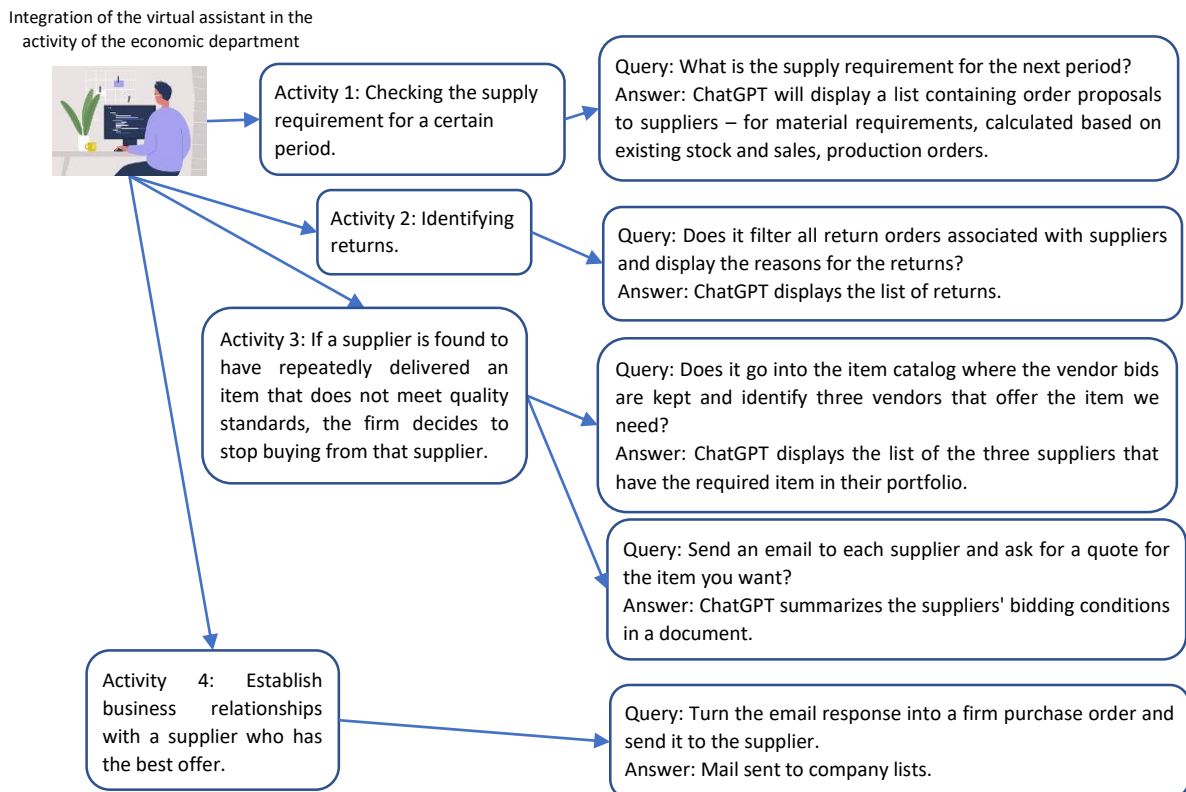
move by companies to use artificial intelligence in professional activities has led to an acceleration of the implementation of advanced data analysis algorithms and the simulation of human language conversation within IT systems (Leitner-Hanetseder et al., 2021).

According to Pérez Estébanez, (2021), an IT solution that incorporates AI technologies offers numerous benefits to companies in terms of:

- Carrying out analyses. AI models can significantly improve estimates by making effective use of historical data. Specific applications are: better management of seasonality to avoid under- or over-production; using machine learning algorithms to track an item throughout its life, from manufacturing to sale; detailed sales analysis;
- Managing customer relationships. Using AI technology at the IS level can result in faster, more cost-effective, and more stable service delivery. The most common use of the chatbot is using a chatbot to quickly answer common questions asked by customers;
- Management of back-office activities (accounting). In financial-accounting management, AI technology can contribute to automating repetitive accounting operations; increasing the efficiency of transaction processing and the accuracy of reports.

By integrating artificial intelligence as a virtual assistant, the operations that the user must do to access data within an integrated IT system are optimized (Sharma et al., 2022). The benefits brought by AI to an IS are decision-making support; easy and efficient access to stored data; automatic recording in the system of all data that can be analyzed or reported immediately; improved management of workflows in the company (Rhim et al., 2022).

Figure 1. Scenarios regarding the integration of ChatGPT within an ERP
(Source: own conception)



A possible scenario for the use of ChatGPT in the economic department concerns the verification of supply requirements and the identification of new product suppliers. This is in case the current suppliers offer products that do not comply with the company's quality standards. The dialogue between the human operator and the virtual assistant is carried out by typing the text shown in figure no. 1.

It can be seen that tools from the field of artificial intelligence will become common components in ERP-type systems, helping to improve the experience of those who use them in terms of interaction with suppliers.

I.2. ChatGPT, the innovation factor in the accounting profession

After the hysteria of robots taking the place of workers in factories, the mass media is currently circulating the idea of the disappearance of some traditional professions. The appearance of printing did not lead to the disappearance of handwriting, nor will AI replace creative work (Bommarito et al., 2023). When asked what ChatGPT is, it describes itself as "a virtual entity, without a body or physical presence, whose purpose is to help people solve their problems or answer questions the most clearly and accurately possible."

The study Leadership in AI 2021: boards, barriers and new beginnings designed by Venugopal (2020) presents the degree of adoption and benefits of artificial intelligence in different organizations, as well as the possible impact of this technology on business and organizational cultures. The study highlights that governing bodies recognize the value of artificial intelligence, but are concerned about the ability of the human factor to adapt to rapid technological developments. This is given the required levels of technical knowledge and acceptance of technology.

ChatGPT is an indicator of progress made in the field of technology and a step closer to a system capable of thinking at a human level. In this sense, we can list the areas in which ChatGPT could be a colleague of the human factor (A. Shaji George et al., 2023):

- Technology and artificial intelligence could support professions related to software development and web design. This is because ChatGPT has a considerable success rate in writing software code, using as a source the code libraries published on various specialized platforms;
- Mass media (advertising, journalism, graphic designers), ChatGPT, and other similar forms of artificial intelligence can support the human factor in creating relevant content within a reasonable time frame;
- In the legal sector, ChatGPT can sift through large amounts of legal information and present it in a logical format within a legal memo. AI will not be able to fully automate judicial work because a certain degree of human judgment is needed to understand what a client or employer wants.
- Consulting (financial analysts, personal financial advisors, market research analysts), AI technology is suitable for: identifying trends, highlighting profitable investments, and communicating synthesized information to clients/investors;
- In the accounting services industry, due to the regulated nature of the activity, but also to the manipulation of structured data, ChatGPT is an ideal tool to replace repetitive

activities. Accounting professionals find real support in AI tools to revolutionize the way they organize accounting records and interact with clients.

ChatGPT represents a tool with significant potential in the activity of accounting professionals. Due to the accumulation of information resources, accounting professionals must adapt to evolving technologies by evolving from the stage of clerks to knowledge workers to provide business consulting to clients (Bommarito et al., 2023). This paradigm shift in the accounting profession also takes place in conditions where the positions of novice accountants, whose task is to enter data from a physical format into various IT applications, are no longer of interest to the human factor.

How accounting professionals can integrate this tool into their activities (Alshurafat, 2023):

- Assistance with generating financial reports and documents. In this case, by giving it access to the necessary data, the AI model takes care of generating financial reports accurately and in a short time frame compared to the time required by humans.
- Usefulness in data analysis. The AI model can be trained to analyze data and provide insights and recommendations.
- Automation of routine activities (e.g. data entry and reconciliation) gives more time to the accounting professional for more complex tasks;
- Assisting customers by providing answers to their questions.

Worldwide, it is estimated that this technology will have an overwhelming impact on the accounting profession, quantified by saving 400 million work hours/year for manual data entry, increasing labor productivity by 25%, and reducing errors by 10% (Brachten et al., 2021).

The main disadvantage of using ChatGPT in the work of a professional accountant is the time and cost required to implement and learn this tool (Alshurafat, 2023).

The opinion that ChatGPT could replace some jobs is exaggerated. Human judgment must be used to avoid errors and harm caused to customers on the one hand, and on the other hand, to assume responsibility in case they occur. In this sense, no technological tool will be able to replace human-to-human interaction, but it is possible to establish a hybrid work regime in which the individual factor will supervise an army of robots that perform tasks with a medium degree of complexity, the responsibility remaining in continuation in man's charge.

I.3. Chatting with ChatGPT

ChatGBT is a prototype dialogue-based artificial intelligence chatbot capable of recognizing natural human language and generating human-like text. Tools in this category have been around for a while, but previous versions "didn't understand" what people were talking about. This tool gives the impression that you are talking to a person, who understands your intentions and goals.

Key features of ChatGPT that recommend it as the perfect tool to improve productivity are efficiency in extracting information from data sources available on the Internet, applying analytical techniques to process data, interpreting and displaying it in a cursive format, and logically, continuous learning based on interaction with users (Aydın & Karaarslan, 2022).

Considering the benefits of ChatGPT technology, we propose to investigate how it can answer a series of questions in the field of accounting, thus verifying its ability to respond

correctly, completely, and on time to cases formulated by the accounting professional, on the model of a study identified in the specialized literature (Street & Wilck, 2023).

Some 10 questions related to accountants, accounting, and the application of profit tax calculation algorithms were formulated considering Romanian tax legislation.

The first 3 questions addressed to ChatGPT consider how the system can extract relevant information related to tax legislation and its application in some cases. In this case, it is necessary to determine profit tax or the classification of some social expenses as deductible. The following 4 questions are aimed at verifying how the system can provide a precise answer concerning the way to evaluate stocks when leaving the patrimony, the conditions for classifying assets as fixed assets, the enumeration of accounting work regarding the closing of the financial year, and the way to optimize the tax on profit allowed by Romanian tax legislation. The last 3 questions are related to the accounting profession. They aim to check the system's ability to develop an answer regarding the mission of accounting experts and the difficulties of this profession.

II. Results

The results of the questions posed to the ChatGPT tool have been evaluated by professional accountants in terms of the efficiency and accuracy of the information provided.

The answers are below in edited form to extract the essentials. In this regard, references to the resources from where the ChatGPT tool adapted text sources in an attempt to answer the formulated questions were removed. The numerical examples are expressed in the national currency specific to Romania - the Romanian leu.

The first set of questions refers to how the system can extract relevant information related to tax legislation and its application. This is required to determine profit tax or the classification of some social expenses as deductible.

Query 1: To calculate according to Romanian legislation, the profit tax related to the 2nd quarter of 2022 knowing that:

- cumulative total revenues on 30.06.2022 are 425,000;
- cumulative total expenses on 30.06.2022 are 384,500, of which: 3,500 protocol expenses and 1,650 expenses with profit tax related to the 1st quarter.

Answer 1: According to Romanian legislation, profit tax related to the 2nd quarter of 2022 can be calculated using the following formula: Taxable profit = Total income - Total expenses

Accounting professional comment: $Tax\ result = Total\ income - Total\ expenses - Tax\ deductions - Non-taxable\ income + Non-deductible\ expenses$

In the given case, the total accumulated revenues on 30.06.2022 are 425,000, and the total accumulated expenses on the same date are 384,500. Of these, 3,500 are protocol expenses and 1,650 are expenses with profit tax related to the 1st quarter.

Therefore, the total expenses adjusted for the calculation of profit tax are $384,500 - 3,500 - 1,650 = 379,350$.

The taxable profit is equal to $425,000 - 379,350 = 45,650$

Accounting professional comment: *Protocol expenses are deductible within the fiscal result limits of 2%.*

$Deductible\ protocol\ expenses = 2\% * 45,650 = 913$

$Non-deductible\ protocol\ expenses = 3,500 - 913 = 2,587$

$$\text{Taxable profit} = 425,000 - 384,500 + 2,587 + 1,650 = 44,737$$

The profit tax related to the second quarter of 2022 is 16% of taxable profit.

Thus, the profit tax for the 2nd quarter of 2022 is: $45,650 \times 16\% = 7,304$

Accounting professional comment: *Incorrectly determined taxable profit leads to incorrect calculation of profit tax; the profit tax related to the 1st quarter was also not taken into account, which will be deducted from the amount calculated for the 2nd quarter (in Romania, the result is taxable and the profit tax is determined cumulatively from the beginning of the year).*

Thus, the profit tax calculated for the 2nd quarter of 2022 is: $44,737 \times 16\% = 7,158$

Profit tax due for the 2nd quarter of 2022: $7,158 - 1,650 = 5,508$

Query 2: According to the labor code, a commercial company will spend 365,000 on staff salaries in 2020. During the year, the company grants gifts, in cash, to the minor children of employees for 5,000. In addition, it bears the cost of rest treatment benefits for its employees and their family members for 13,000. To determine if social expenses are fully deductible?

Answer 2: To determine the fiscal result of a commercial company, the expenses incurred to carry out the economic activity, including those regulated by the normative acts in force, as well as the registration fees, contributions, and contributions owed to the chambers of commerce, are considered deductible expenses. In the case of social expenses, their deductibility is limited to 5% of staff salary expenses. Thus, if you record social expenses in the amount of up to 5% of staff salary expenses, they are fully deductible when calculating profit tax. If the value of these expenses exceeds 5% of staff salary expenses, they are deductible only within the limit of 5% of staff salary expenses.

In the current scenario, the expenses for staff salaries are 365,000. Rest treatment benefits for own employees and their families in the amount of 13,000 fall within the expenses incurred to perform an economic activity and, therefore, are fully deductible.

However, the expenses with the gifts given in money to the minor children of the employees, for 5,000, represent social expenses. As a result, they are limited to 5% of the expenses with the salaries of the staff. Due to the above situation, 5% of the staff salary expenses are 18,250 ($36,5000 \times 5\%$), so costs for 5,000 gifts for minor children of employees are fully deductible.

Accounting professional comment: *Correct answer provided by ChatGPT.*

Query 3: As of March 31, 2020, the following data are known:

- revenue from sales of 62,500;
- total expenses for 37,5500, of which: 3,500 maintenance and repair expenses and 2,500 fuel expenses.

Knowing that the car is not used exclusively for economic activity, determine the profit tax due at the end of quarter 1 of 2020.

Answer 3: To determine the corporate tax due at the end of Q1 2020, the company's taxable profit must first be calculated based on the data provided. The taxable profit is calculated by subtracting the deductible expenses from the income obtained in the respective period. From the data provided, sales revenues are 62,5000, and total expenses are 375,500. Therefore, the taxable profit is 249,500.

Accounting professional comment: *ChatGPT does not take into account the provisions according to which when a car is not used exclusively for economic activity, maintenance and repair expenses, as well as fuel expenses, are deductible at a rate of 50%.*

$$\text{Taxable profit} = 625,000 - 375,500 + 3,000 = 252,500$$

$$\text{where } 3,000 = 50\% * (3,500 + 2,500)$$

$$\text{Profit tax} = 16\% * 252,000 = 40,400$$

Regarding the corporate tax due at the end of quarter 1 of 2020, it is imperative to note that for companies paying quarterly corporate tax, the tax due for that quarter is calculated by applying the corporate tax rate to the taxable profit made in that quarter.

According to the available information, the company has not yet paid its profit tax for 2019. By Government Emergency Ordinance no 69/2020, on March 31, 2020, interest, penalties, and all accessories related to the main budgetary obligations outstanding on that date are canceled, if certain conditions are met. However, nothing is mentioned about the cancellation of back taxes. Therefore, the company may also have to pay the outstanding profit tax for the year 2019, in addition to the profit tax related to the 1st quarter of 2020.

If the company has not paid profit tax for the year 2019, it may be subject to penalties and interest for late payment. This is according to the Fiscal Code.

Accounting professional comment: *In Romania, the principle of independence of financial years is applied, so the result of the year 2020 and the related profit tax are treated independently of the result and the tax related to the year 2019.*

Considering the answers received, we can distinguish the following limits of ChatGPT in solving some requests in the financial-accounting-fiscal field:

1. *Query responses are the result of knowledge generated by an amalgamation of published materials that refer to various periods. ChatGPT does not distinguish current/applicable information from outdated/repealed information.*

2. *is not trained to make correlations and compilations between several sources from different fields: accounting, taxation, labor law in solving a case*

3. *cannot distinguish between certain nuances/peculiarities in the application of accounting and tax legislation*

4. *has difficulty determining which accounting method/accounting policy/accounting regulation/tax regulation should be used when there are several alternatives.*

The 2nd set of questions refers to the verification of how the system can provide a precise answer regarding the way of evaluating the stocks when leaving the patrimony, the conditions for classifying the assets as fixed assets, the enumeration of accounting works regarding the closing of the financial year, the way of optimizing the profit tax allowed by Romanian tax legislation.

Query 4: How are stocks of raw materials valued upon exiting the estate?

Answer 4: There are several calculation methods for the valuation of raw material stocks at the exit of the estate, including the weighted average cost method (WAC), the first-in-first-out (FIFO) method, and the last-in-first-out (LIFO) method. When leaving the estate, stocks can be valued at their cost or entry value. In addition, it is imperative to take into account relevant aspects of the proper conduct of the inventory and stock valuation process. These aspects include the determination of inventory periods, process responsibilities, and inventory procedures.

Accounting professional comment: *Correct answer.*

Query 5: What are the conditions for classifying goods as fixed assets?

Answer 5: Fixed assets are those tangible assets related to fixed capital defined as the object or complex of objects that are used as such and cumulatively meet the following conditions: they have an input value greater than the limit established by Government decisions and are used for a period greater than one year.

To qualify an asset as a fixed asset, it is imperative that it brings future economic benefits and is held for more than one year. In this sense, there is no minimum value imposed by accounting regulations.

There are many cases in practice regarding the classification of purchased goods as fixed assets or inventory items. Therefore, it is imperative to understand the differences and similarities between the two accounting categories.

Accounting professional comment: *Fiscal regulations impose a minimum entry value for goods with a useful life of more than 1 year to be classified as fixed assets; the fiscal implications consist of the number of expenses that will be recorded from the moment of putting into use (through depreciation, the input value is gradually recovered on account of the expenses; if the input value is below the minimum established by the tax law, the respective goods are considered inventory objects whose value entrance fee will be fully recovered at the time of commissioning).*

Query 6: What are the requirements for the preparation of financial statements for the year 2022?

Answer 6: Closing the financial year is a crucial process in accounting and aims to record all transactions and business activities related to a fiscal year and prepare financial statements for reporting. According to the accounting regulations regarding individual financial statements and consolidated annual financial statements, approved by order of the ministry of finance no. 1802/2014, the accounting works regarding the closing of the financial year for the year 2022 should comply with the following requirements for the preparation of financial statements:

- Accounting for all financial transactions and activities related to the fiscal year.
- Preparation of individual financial statements and, as the case may be, consolidated annual financial statements.
- Preparation of accounting documents required for closing the financial year, such as accounting journals, trial balances, accounting records, and other specific documents. Carrying out the inventory of the heritage, highlighting the differences between the stocks and assets inventoried and those recorded in accounting.
- Recording of accounting adjustments necessary to correct errors or to reflect additional information related to the closed financial year.
- Preparation of financial reports to present the financial situation of the entity at the end of the financial year.
- In addition, it is imperative to note that the closing of the financial year must be carried out according to the legal provisions in force at the time. This is to ensure compliance with current tax and accounting regulations.

Accounting professional comment: *Correct answer.*

Query 7: How can the Romanian tax law optimize the profit tax?

Answer 7: In Romanian tax legislation, there are several ways to optimize the profit tax, which can be used by companies to reduce the tax burden and obtain a higher net profit. In July 2022, by Government Emergency Ordinance no. 16/2022 for the amendment and completion of the Fiscal Code, some fiscal changes were made that could be useful for this purpose. In addition, other measures can be considered, such as:

- Deductibility of research and development expenses: Companies can deduct research and development expenses up to 50% of the profit tax due in the respective fiscal year.
- Deductibility of sponsorship expenses: Companies can deduct sponsorship expenses up to 0.5% of the net turnover achieved in the respective fiscal year.
- Transfer of profit to other countries: Companies can transfer the profit obtained in Romania to other countries through transfer pricing so that the tax paid in Romania is lower. However, certain conditions and procedures provided by the Fiscal Code must be respected.

It is critical to note that any tax optimization measure must follow the tax legislation in force. This is so as not to break the law and avoid possible problems with the tax authorities. That is why it is recommended to consult a tax consultant before making any decision to optimize profit tax.

Accounting professional comment: *Correct answer.*

Regarding this second set of questions, we can conclude that ChatGPT "did better", in the sense that it can understand the language specific to the field of accounting - taxation. For questions of a theoretical nature, the answers are acceptable at first glance. But a closer look reveals that there are omissions, thus confirming that ChatGPT knows a lot about a lot of things.

Set 3 of questions refers to the accounting economist profession.

Query 8: What can you tell me about accountants in Romania?

Answer 8: Romanian accountants are professionals in the field of accounting who have the role of assisting companies and organizations in the administration of financial information. They deal with the registration, classification, and reporting of financial information. In addition, they prepare accounting and tax reports according to accounting standards and tax legislation in force. Accountants can work within a company or as independent consultants. Accountants in Romania must be members of a professional body, such as the Chamber of Accounting and Accounting Expertise in Romania. This helps them stay up to date with developments and standards in the field of accounting.

Accounting professional comment: *Correct answer.*

Query 9: How difficult is it to be an accountant in Romania?

Answer 9: It is a field with high requirements, which requires solid knowledge of accounting, taxation, and legislation. Accountants in Romania must pay attention to details, have communication skills and be able to work with complex financial data. It is also imperative to be aware of legislative changes and international accounting standards.

However, for those who are passionate about the field and want to develop professionally, being an accountant in Romania can be a satisfying career with growth potential. Businesses and organizations can benefit from their expertise and they offer financial advice.

Accounting professional comment: *Correct answer.*

Query 10: If you lived in Romania, would you choose to be an accountant?

Answer 10: As an AI language model, I don't have a personality or preferences, but I can tell you that being an accountant can be a fulfilling job with growth potential. Accounting is a vital field, essential for the efficient functioning of businesses and organizations, and offers the opportunity to contribute to sound financial decisions.

However, this decision should be made based on your passions and skills, so that you can ensure that you choose a career that will bring you long-term satisfaction and fulfillment.

Accounting professional comment: *Correct answer.*

ChatGPT can generate answers to general accounting questions due to its ability to retrieve and compile logically various information. This is not related to the application of reasoning or a deep understanding of various regulations/standards in the field.

CONCLUSIONS

Artificial intelligence, with all its components, has proven its usefulness in many activities of daily life. Much of the progress in the current period is due to the way we use this technology. The adoption of AI by companies will generate competitive advantages and financial benefits.

ChatGPT is a general-purpose language model that is not specifically optimized for accounting. However, it can understand and generate accounting text, but may not be able to perform complex tasks that require domain-specific knowledge or expertise.

Following the application of the tool to a set of 10 accounting and taxation questions and based on the evaluation of the answers by accounting professionals, we can conclude that the influences of ChatGPT on the exercise of the accounting profession can be both positive and negative.

Positive influences on using ChatGPT in accounting:

- generating acceptable answers to theoretical questions.
- the ability to answer all questions.
- the ability to logically compile the information to which it has access.

The negative impact of using ChatGPT in accounting consists of:

- performing erroneous calculations when asked to solve applied practical problems that require a selection of information from different available sources;
- Incomplete elaboration of answers, despite correctness.

Considering the responsibility and responsibilities of accounting professionals in their relations with both economic agents and state institutions, we consider it inappropriate to use ChatGPT as a working tool in the exercise of the accounting profession.

It is imperative to point out the limitations of the study. Starting with the stated purpose, that of verifying the impact of the use of ChatGPT technology in the exercise of the accounting profession, in the field of accounting, the main limitation is related to the content of the queries. The questions have a relatively simple character, without requiring complex reasoning. Consequently, the professional accountant's needs regarding the qualities/capabilities/competencies required from a robotic work partner are insufficiently defined. It is possible, however, to use the study as a starting point for future research. In this

sense, as knowledge about ChatGPT technology deepens, we set out to develop a questionnaire for the study of the acceptance of this technology among accounting professionals.

Going beyond the scope of the present work, we can affirm that artificial intelligence is in the "golden period" of its existence. This is due to the technical advances that make its application possible and the interest of the human factor in its exploitation. With ChatGPT going public and its acquisition by Microsoft, competing firms found themselves at a competitive disadvantage. In these conditions of the recognition of AI as a vehicle for positive change, in the next period, we will witness the public launch of similar tools by companies in the tech industry (e.g. Google, Amazon, Facebook).

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INTELLIGENT PACKAGING AS A MARKETING TOOL. ARE DIGITAL TECHNOLOGIES RE-SHAPING PACKAGING?

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Abstract. *Rapid technological advancements, digitalization trends, changes in consumer behavior, and call to achieve sustainable development goals induce transformations in the packaging industry. Digital technologies are enabling the packaging to move from its core passive functions to more enhanced features such as prolonged preservation, traceability, communication, sustainable supply chain, life-cycle evaluation, and extended shelf-life of a product. Intelligent packaging can provide information about the conditions inside and outside of the packaging preventing contamination of the product. Monitoring of food products allows consumers, producers, and retailers to avert potential spoilage and unnecessary waste. Consumer behavior determines the success of intelligent packaging. Their acceptance of new technologies, environmental concerns, attitude towards sustainability issues, as well as safety and quality preferences define customers' buying behavior. The innovative features of packaging have not yet attracted much attention from academics and practitioners. In addition, the design and development of such packaging are associated with high prices, which encourages manufacturers to avoid it. Therefore, a comprehensive understanding of current packaging trends can shed light on the benefits and potential barriers to its use. This paper provides a literature review of intelligent packaging and explains its functions. It defines the role of packaging in marketing in the current digital era. The paper discusses the definitions of smart, active, and intelligent packaging and suggests how intelligent packaging can serve as a marketing tool while achieving marketing strategies.*

Keywords: *packaging, intelligent packaging, marketing, digital technologies, communication, sustainability*

INTRODUCTION

The unprecedented advancements in digital technologies in the past few years have empowered companies to reshape marketing tools and strategies. The emergence of Artificial Intelligence, Virtual Reality, Big Data Analytics, Mobile Internet, Internet of Things, Blockchains, Automation, and Robotization enabled marketers to respond to consumers' needs in an effective and efficient way. The advent of the digital economy along with the New Normal caused by the recent pandemic has altered social systems and business models toward innovative solutions (Skala, 2019; Gigauri, 2021). Technological progress and accelerated digitalization influenced packaging and created new opportunities for the packaging industry.

Consumer requirements towards packaging are changing in line with digitalization trends. Changed lifestyles and the current digital age imply consumers' decisions on more convenient packaging, especially for food and drink products (Jinkarn & Suwannaporn, 2015).

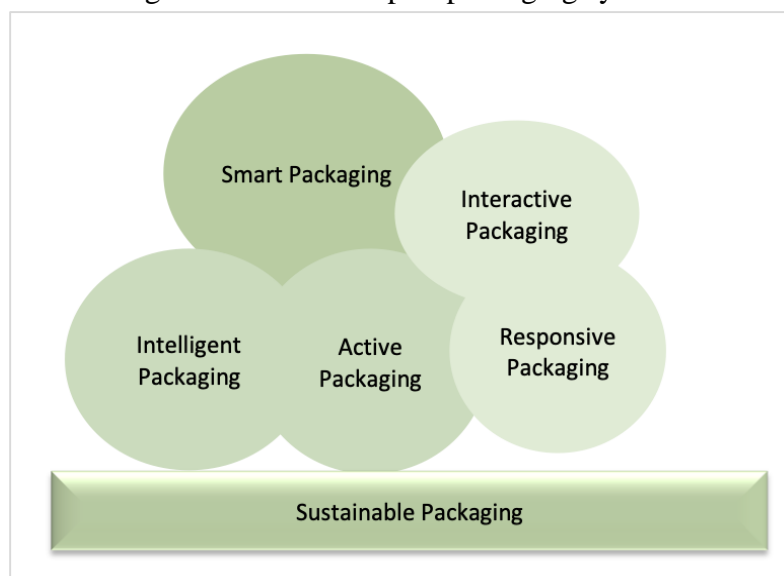
Packaging makes impression on buyers as they first come into contact with the packaging before the product. Therefore, the visual effects of packaging including shape, size, and color are significant marketing elements. The positive feelings and emotions evoked by the packaging can lead to a purchase decision. For this reason, packaging as a marketing tool has become attractive for researchers and marketers, who have more and more improved packaging systems. As a result, intelligent packaging emerged combining digital, innovation, and marketing tools. The importance of packaging is not only represented for supply chain management but also for improving packaging sustainability. Demand for traceability features is growing and the need for the safety and quality of products is increasing. Intelligent packaging provides information about the conditions inside and outside of the packaging enabling timely decision-making. Its potential to prevent waste aligns with Sustainable Development Goals. In this vein, packaging has become essential not only from the marketing perspective but also for the implementation of sustainable business strategies.

This review paper addresses the role of intelligent packaging from a marketing perspective. To achieve its aims, the paper provides definitions of active, intelligent, smart, and sustainable packaging and discusses the functions and benefits of intelligent packaging for marketing strategies.

I. About the Definition of Intelligent Packaging and Related Terms

The advancements in the intelligent packaging system resulted from the current technological progress, changes in consumer preferences, and sustainability trends (Palazzo et al., 2023). The term is related to smart, active, interactive, responsive, intelligent, and sustainable packages (Figure 1).

Figure 1. Relationship of packaging systems



Source: Authors' elaboration based on the discussion of definitions.

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Smart packaging offers improved functions utilizing new technologies (Kerry & Butler, 2008). Incorporated sensor technology enables smart packaging systems to monitor products such as food and pharmaceuticals aiming to transmit information about their quality, safety, and freshness (Schaefer & Cheung, 2018). Smart packaging contains characteristics of intelligent packaging and active packaging (Vanderroost et al., 2014). In this regard, Schaefer and Cheung (2018, p. 1023) summarize the smart packaging notion in the following way: “Smart packaging allows to track and trace a product throughout its lifecycle and to analyze and control the environment inside or outside the package to inform its manufacturer, retailer or consumer on the product’s condition at any given time”.

Active packaging includes additives to maintain the quality and shelf life of a food product (Biji et al., 2015). It is mainly used for rapidly perishable products to reduce the number of active materials causing food damage and avoid bacteria from entering the product (Schaefer & Cheung, 2018). Usually, active packaging systems contain oxygen scavengers, ethylene scavengers, flavor and odor absorbers/releasers, antimicrobial and antioxidant packaging technologies (Prasad & Kochhar, 2014).

European Food Safety Authority defines intelligent packaging as “materials and articles which monitor the condition of packaged food or the environment surrounding the food (Regulation (EC) No 1935/2004 Article 2.2.b and Regulation (EC) No 450/2009 Article 3.b)” (EFSA, 2009, 4). Intelligent packaging systems inspect food condition and transmit information about its quality during storage or transportation (Biji et al., 2015). The system contains various indicators such as time-temperature, gas detectors, and freshness or ripening indicators (Prasad & Kochhar, 2014). Intelligent packaging is a complex system embedded with intelligent functions to detect, record, track, and communicate information about the quality of a packaged product (Yam et al., 2005). These functions are achieved through hardware components such as different indicators and sensor devices as well as radio frequency identification (RFID) systems (Kerry, O’grady & Hogan, 2006), which trace, record, and provide information about discovered alterations in a product and its environment inside packaging (Realini & Marcos, 2014). Thereby, for example, changing oxygen or pH levels, the freshness of food, or temperature can be detected (Yam et al., 2005).

Responsive packaging responds to specific stimuli in the food or surrounding environment, such as microorganisms, with the purpose of monitoring and enhancing food quality (Brockgreitens & Abbas, 2016).

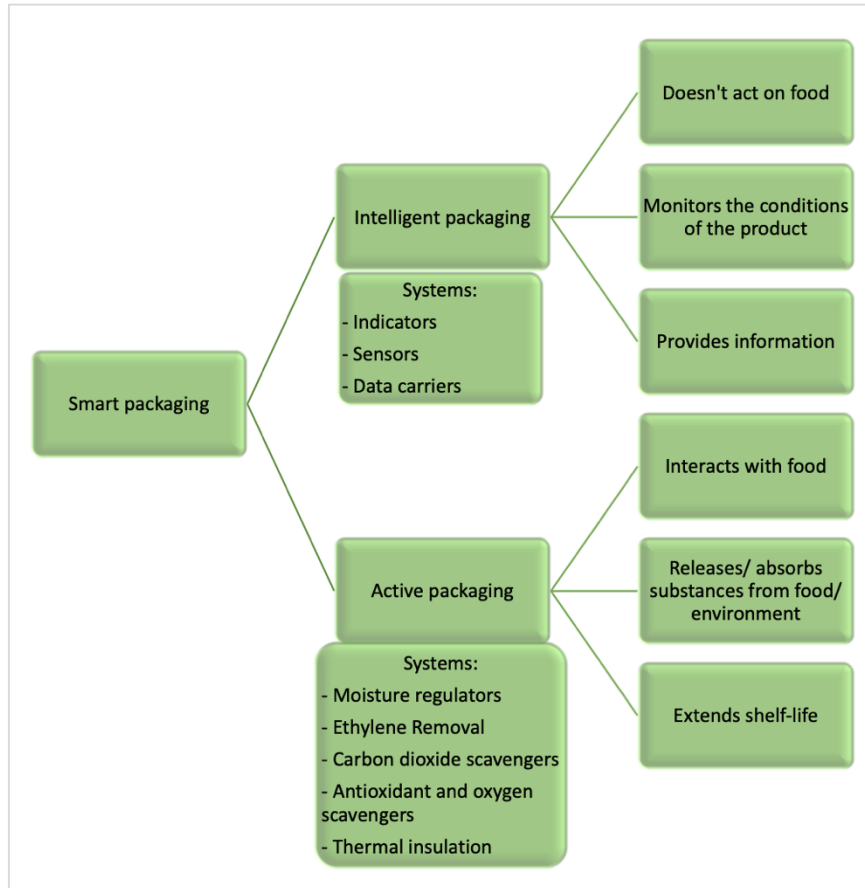
Interactive packaging enables two-way communication between consumers and packaged goods through the incorporated technological systems (Butler, 2013). The research conducted by Lydekaityte and Tambo (2020) found that smart interactive packaging improves the effectiveness of a product and increases consumers’ experiences as they can engage with it.

Active packaging systems react to the food environment to enhance the quality, safety, and shelf-life, while intelligent packaging aims to monitor the conditions of the product (Drago et al., 2020). Accordingly, intelligent packaging detects and shares information, whereas active and responsive packaging takes actions to improve the quality of food and environment (Vanderroost et al., 2014). As a result, both types of packaging can cooperate under the concept of Smart Packaging (Müller & Schmid, 2019) to enhance product quality (Figure 2).

Sustainable packaging refers to eco-friendly packaging that also considers social and

economic aspects (Boz, Korhonen & Koelsch Sand, 2020). Sustainable packaging is sourced from renewable and sustainable materials, it can reduce waste as well as resource and energy use. Sustainable packaging is recyclable and reusable.

Figure 2. Systems and Properties of Active and Intelligent Packaging



Source: Authors' elaboration based on Drago et al., 2020.

II. Functions and Benefits of Intelligent Packaging for Marketing strategies

In general, packaging plays a significant role in the consumer market being an essential marketing element of marketing communication strategy (Rundh, 2009). Moreover, packaging design must suit to the working lifestyle of consumers taking into account urbanization.

Since customers' expectations are constantly changing and their demands are never fully satisfied, companies are motivated to create consumer-oriented offers attracting purchasers to participate in the process (Baruk & Iwanicka, 2015).

Packaging functions involve not only the protection of a product but also represent marketing tools (Robertson, 2013) as a communication trait is an integral part of packages. The communication strategy of marketing incorporates brand concept and product quality for influencing consumer decisions. Customers first encounter packages when touching a product and get their first impression of a brand and product through packages. Successful marketing communication through packaging covers not only information about the product but also packaging design, fonts and colors used as well as logos, illustrations, and symbols on it (Koutsimanis et al., 2012; Renn, 2007; van den Berg-Weitzel & van de Laar, 2001). Therefore,

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packaging involves an important task to promote and sell commodities by providing information about a product (Rundh, 2005).

In addition to the communication function, packaging has logistics, environmental, and marketing chain functions (Prendergast & Pitt, 1996; Rundh, 2005). Packages must protect products during shipment, distribution, storage, and transportation.

Furthermore, convenience features are the most demanded function of packages because of modern lifestyles. For consumers, packages of food, home care, or pharmaceutical products must be easy to open, re-close, unwrap, store, and carry, while for manufacturers, the packaging system should be convenient in order to pack and distribute goods (Jinkarn & Suwannaporn, 2015). Therefore, packaging design including such convenience functionality is a significant marketing tool (Silayoi & Speece, 2004).

Intelligent packaging detects and conveys information about the condition of the product. However, it does not have a function to address the problem it detects but stimulates active packaging function to tackle the changed environment or alterations in the product. Intelligent packaging aims to reveal the quality conditions of the product and therefore, improve its safety. For this reason, it includes several devices and detectors such as time-temperature indicators, freshness indicators, and tracking services to monitor the transportation and storage of perishable products. In addition to indicators, intelligent packaging contains data carriers to track product movement throughout the supply chain and chemical sensors to transform chemical information into a measurable signal (Azeredo & Correa, 2021). Consumers have access to the information intelligent packaging is gathering.

Prior studies conducted through 600 interviews with consumers revealed that the most essential feature of food and drink packaging was the opening characteristics, which impact purchasing decisions, and consumers even were ready to pay more for convenient packaging including tamper-evident design (Jinkarn & Suwannaporn, 2015). Moreover, Baruk and Iwanicka (2015) found that environmental aspects of dairy product packaging positively affect the consumer purchasing decision.

Blankenbach et al. (2018) developed smart packaging with Bluetooth and smartphone application for pharmaceutical products to provide information to patients about medicine intake. Through E-paper and sensors, it is possible to control the amount of liquid, number of tablets, and time to take tablets, equipped with alarm and reminder systems (Blankenbach et al., 2018). Logistically, it helps to monitor environment, temperature, and enables data transfer; it includes QR code and active tag for security, data exchange, and reordering purposes (Blankenbach et al., 2018).

The importance of packaging for marketing is increasing due to the following factors. First, consumer products require packages in order to bring them to market (Baruk & Iwanicka, 2015). Second, increased competition, a large number of available, and continuously more new products offered force companies to find innovative ways for differentiation (Wells et al., 2007). In this sense, packaging acts as an outstanding marketing tool to attract the attention of buyers. Third, changes in the marketing environment such as cultural, social, economic, and technological factors influence buying decisions, and hence, the packaging is expected to meet the expectations (Albino et al., 2009). Fourth, self-service facilities on the market are growing, where packaging serves as a “silent salesman” (Baruk & Iwanicka, 2015; Rettie & Brewer,

2000). In this regard, packaging can not only convey product information in a persuasive way but consumers also can feel and see the packaging before making a purchase decision.

Additionally, consumer awareness and demand for knowledge are growing. They want to know about the origin and composition of the product. Interestingly, studies revealed that consumers' age, gender, and education determine their expectations of packaging, which impacts their purchase decision (Baruk & Iwanicka, 2016).

Previous research performed through focus group interviews in Sweden and used thematic analysis demonstrated that consumers concern about the ethical and environmental impact of packaging material suggesting that manufacturers should communicate favorable characteristics of packaging (Fernqvist, Olsson & Spendrup, 2015). Food product perishability can be avoided by appropriate packaging to increase their shelf life and hence, decrease food waste, which is a main problem in the food supply chain (Li et al., 2020). Since products have an environmental impact throughout their life cycle (Williams & Wikström, 2011), companies need to decrease waste caused by damaged products using the intelligent packaging. The quality of a product can be communicated by transparent packaging (Fernqvist et al., 2015), which is made mainly of plastic. Intelligent packaging, conversely, provides through technological devices.

Prior studies show that marketers can attract consumers through targeted packaging design and communication of product benefits based on consumers' opinions on packaging (Fernqvist et al., 2015). Likewise, the research results indicate that consumers demand that fruit and vegetable packaging communicate the origin of products, cooking recipes, as well as product name, brand, and expiration date (Fernqvist et al., 2015). Thus, packaging reflecting food quality and brand value creates consumer satisfaction (Coles, 2003) and helps achieve a competitive advantage.

In addition, packaging impacts the returns in online shopping (Wallenburg et al., 2021), as secondary and primary packages serve as a sensory experience for buyers (Heller et al., 2019). It communicates about the seller and purchased items. Especially, secondary packages are specifically designed by online retailers as a differentiation strategy to meet or even exceed customers' expectations. Packaging includes branding features to "create a premium esthetic appeal" (Wallenburg et al., 2021).

The recent study results by Palazzo, Vollero and Siano (2023) performed a systematic literature review of 130 articles published between 1991-2021 and confirmed the growing interest of scholars and practitioners toward intelligent packaging, especially, with respect to sustainability and innovation. Intelligent packaging can facilitate the transition to a circular economy and better waste management (Palazzo et al., 2023). Moreover, the research found that the food sector benefits more from advanced features of packaging due to the extended shelf-life and safety of food products (Palazzo et al., 2023; Vanderroost et al., 2014).

CONCLUSIONS

Marketing promotes the sale of products and is associated with the communication function of disseminating information about the brand and the quality or functionality of commodities to consumers. Packaging is recognized as a vital part of a product through which consumers contact the brand, and consequently, the concept of packaging is considered one of the key aspects of marketing strategy. The aim of packaging systems is not only to protect the

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product but also to ensure its safety and quality as well as preserve it during distribution. Additionally, packaging facilitates communication with customers by providing different types of information such as instructions, components, expiration dates, etc. It also sells a product through its attractiveness, as packaging functions and convenience for opening and storage are engaging marketing tools. In this context, intelligent packaging transmits information to stakeholders about the product and its surrounding environment remotely ensuring the satisfaction of consumers' demands. Technological progress and digitization have empowered packaging thanks to which advanced systems and properties are integrated into smart intelligent packaging.

Intelligent packaging can contribute to sustainability trends by reducing wastage and avoiding spoilage of products, especially, food, cosmetics, and pharmaceuticals. Since sustainable development goals aim to improve lives worldwide, consumers' behavior is altering adopting sustainable lifestyles, and demanding more responsibility from brands (Gigauri, 2022; Gigauri & Vasilev, 2022). Intelligent packaging responds to increasing demand for quality and safety and facilitates effective management of the supply chain. In addition, active and intelligent packaging has the potential to become transparent communication tool to consumers, retail and food industry for controlling the food production and supply chain.

This paper contributes to the literature and practice by exploring intelligent packaging as a marketing tool in the light of digital technologies. It adds value on the discussions of new trends and perspectives of smart packaging. The paper distinguishes between various types of packaging contributing to the knowledge of scholars and managers and demonstrates the relationship of the innovative packaging types. It also sheds light on some benefits and advantages of smart, intelligent and active packaging while engaging in debates about its usability for different product categories.

From the marketing perspective, consumer satisfaction through packaging can lead to shifting their behavior in favor of the company brand. Practitioners can recognize that packaging influence consumer purchase decisions. Furthermore, in the era of online shopping, packaging impacts consumer satisfaction and brand reputation. Consequently, marketers should address this issue by creating appropriate packaging design based on research.

Moreover, smart packaging can contribute to sustainability goals by decreasing waste. Consumers' concern about the environment and their willingness to purchase products with eco-friendly packaging is increasing. Thus, they are attracted by sustainable packaging. Accordingly, marketers can impress consumers with targeted packaging design, which communicates product benefits based on consumers' packaging demand.

Future studies should examine the features and characteristics of smart intelligent packaging for different products and survey consumers acceptance of various types of packaging. Since the concept is complex, it can contain many variables requiring more in-depth analysis, especially from different countries and culture contexts.

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MARKETING INNOVATIONS IN CROSS-BORDER PASSENGER TRANSPORTATION

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Abstract. *The development of innovations in various areas of economic activity has its own characteristics. There are a number of unique features for the development of passenger transport routes, which should be considered in more detail than in the planning of freight transport, and characterize this type of activity as particularly unique and requires a specialized approach in marketing innovations in this area. The presented article outlines the basic principles and concepts of the approach both when working with the material and technical base and when working with personnel in the course of planning and implementing innovations in passenger transportation. Particular attention is paid to the system of motivation for the implementation of the innovation process since the result of the introduction of innovation depends on the degree of motivation of potential subjects of the innovation process. Also, options for communication are considered both directly with potential consumers of the service created in the process of innovative activity and with local authorities in those regions where it is planned to carry out the innovative activity.*

Keywords: *marketing innovations, passenger transportation, carbon footprint reduction, motivation, innovation roadmap.*

INTRODUCTION

Modern aspirations to reduce the carbon footprint can be viewed from the point of view of the transportation of passengers from two fundamentally different positions. The first position includes technological changes in terms of personal transport, which is still progressing rather slowly due to the high cost of development results, which makes them inaccessible to the vast majority of the population. The second position is to offer a convenient way of transportation for passengers in order to reduce the use of personal vehicles. For the success of the second position, it is necessary to revise existing routes and develop new ones, including cross-border ones, in order to maximize the convenience of passengers' movement while causing minimal harm to the environment (Honcharova & Metil, 2022). Passenger convenience will come from the fact that the time spent driving a private car can be used much more rationally in the era of virtual production and communication, that is, instead of wasting time on amateur driving, people can spend it studying correspondence, performing certain types of work, that can be done electronically and other things that cannot be done while driving a personal car.

The reduction of the carbon footprint will be facilitated by the fact that passenger transport is much easier to convert to environmentally friendly technologies than private transport (Koval et al., 2022). However, at the same time, the comfort of passengers should not suffer, that is, it is necessary to radically change the approach to the choice of rolling stock for the implementation of all passenger traffic in general and cross-border in particular.

I. Literature review

The problem of optimizing and bringing the passenger transportation system in line with modern requirements has now faded into the background, however, authors such as Comfort (2020) and Munby (2014) are of the opinion that an efficiently functioning passenger transportation system is of high social importance. These authors are of the opinion that there is a need for deep innovation in this industry. In turn, such authors as Dias (2018), Kunret (2018), and Pfohl (2022) note that in the computer era, planning and implementation of various types of transportation, including passenger transportation, should be taken in a new way. As Kunret (2018) emphasizes, the main stabilizing factor at present is complete and reliable information, which is promptly communicated to all participants in the transport and logistics process (Kunert, 2018). In turn, Pfohl (2022) provides clear economic requirements for the passenger route as an object of logistics infrastructure. In general, all authors consider passenger transportation mainly from an economic point of view.

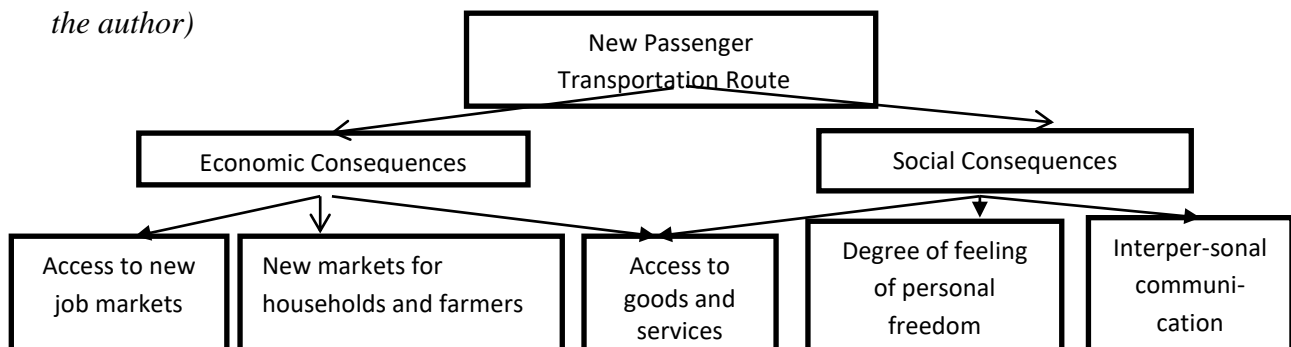
II. Results

II.1. Motivation to development of innovations

The main motivation for the development of innovative activity is the increase in the economic efficiency of enterprises. Passenger traffic is characterized to some extent by seasonality, variability in passenger traffic, different density of potential passenger traffic for different areas and many other features that should be taken into account when developing specific routes and considered along with such facts as the presence of border checkpoints along the route (Fragerberg, et al., 2006). Despite the presence of a number of factors that negatively affect the potential route, the benefits of developing a new route for both the transport company and the population living in the territories that will be served by this route should also be taken into account (Comfort, 2020).

The diagram in Figure 1 shows the implications for an area for which a new passenger route is proposed as an innovation.

Figure 1. Consequences for the area after the opening of a new passenger route. (Compiled by the author)



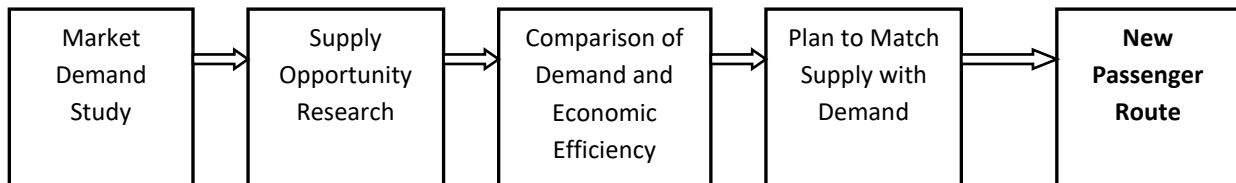
If we consider in more detail the consequences for the region after the introduction of a new route for passenger transportation, then the motivation for introducing innovations in passenger transportation in general and in particular through the development and implementation of a new route will be more widely revealed. As can be seen from Figure 1, all impacts can be divided into two main categories: economic and social. The economic consequences include the opening of new markets for the population. The main thing will be the opening of a new labor market, since in practice there are quite often disproportions in the professional composition between the unemployed and the available vacancies. New passenger routes can help smooth them out through labor redistribution opportunities. It may also open new markets for households and farmers, which will raise the level of well-being of the backbone of any economy - the household (Karlsson, et al., 2009). Thus, the possibility of reducing unemployment, increasing tax inflows from employees, households and farmers is a motive for local authorities to look for opportunities to open new passenger routes (Koval, et al., 2023).

Access to goods and services is not only an economic, but also a social consequence of the introduction of a new passenger route, since from an economic point of view, an increase in trade serves to form a more sustainable economy in the region, and from a social point of view, it makes it possible to improve the quality of life of the population, since access to a wider range of goods and services may also mean access to a greater number of medical services provided by private and public companies, that is, it improves the quality of life of the population in various areas of physiological existence (Nagaraj, 2021).

II.2. Plan for innovation in passenger transportation

When drawing up a marketing plan for any innovation, the stages of innovation should be clearly defined, for which an innovation roadmap is drawn up. Figure 2 presents a roadmap for innovation in the passenger transportation industry.

Figure 2. Innovation Roadmap: "New Passenger Route". (Compiled by the author)



III. Market Demand Study

When studying the market in order to create a new route for passenger transportation, special attention should be paid to a survey of potential consumers of the proposed service. In order to obtain objective and reliable information, it is necessary to conduct full-scale surveys of residents in all settlements according to the proposed route patterns (Tobelman, 2011).

In modern conditions, it is possible to conduct a survey of potential consumers using electronic means, limiting the possibility of submitting a response from each device only once (Boland, 2014). If it is necessary to conduct a study in areas where Internet technologies are poorly developed, it is possible to contact the local authorities for help in conducting a survey of residents.

As an example, let's consider data on non-regular transportation carried out by Bolgradtrans JSC for the period 2020-2022. Figures 5-8 show graphs of passenger traffic for the main traffic routes in Romania and Bulgaria.

Figure 3. Passenger traffic to Galati, Romania
Constanta, Romania

Figure 4. Passenger traffic to

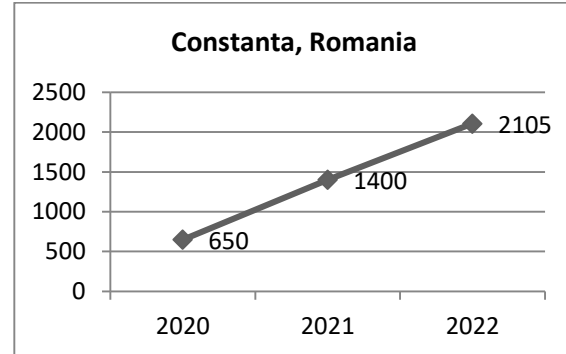
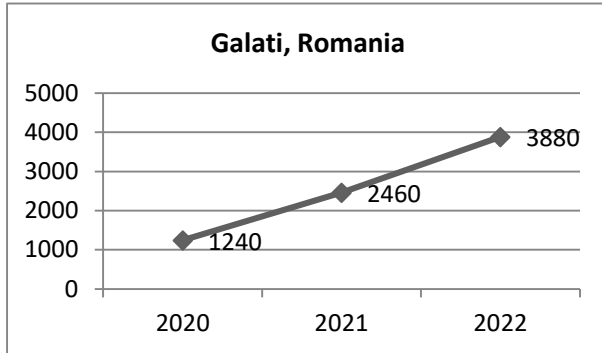


Figure 5. Passenger traffic to Bucharest, Romania
Bulgaria

Figure 6. Passenger traffic to Varna,

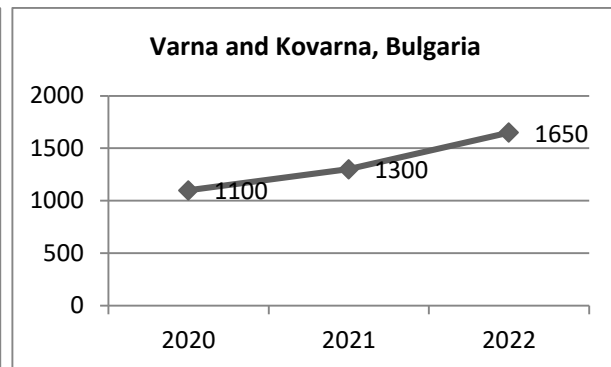
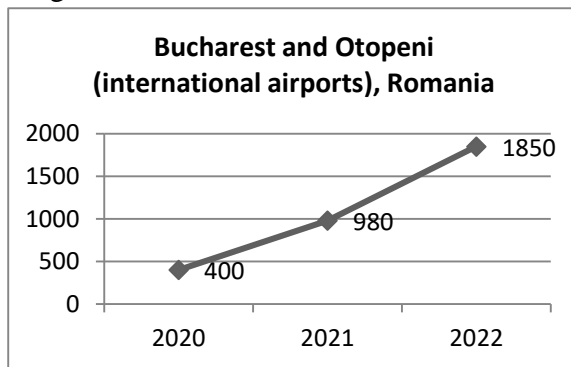
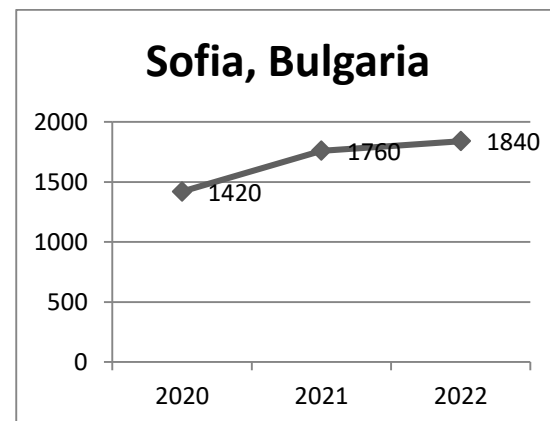
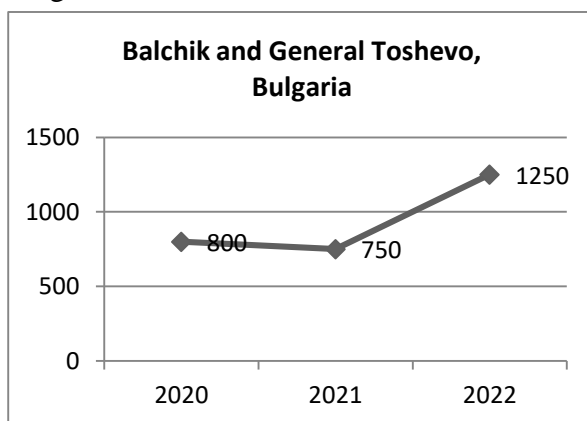


Figure 7. Passenger traffic to Balchik, Bulgaria

Figure 8. Passenger traffic to Sofia,



(Fig.3-8 Compiled by the author)

III.1. Supply Opportunity Research

The study of the capabilities of carriers operating in the region is carried out in terms of the availability of rolling stock, the quality of rolling stock and the formation of a professional staff of drivers for passenger transportation. As mentioned earlier, one of the missions of opening new passenger routes is to reduce the carbon footprint. To achieve this

goal, it is necessary to clearly follow the policy of improving the quality of rolling stock for passenger transportation (Comfort, 2020). Therefore, when considering new possibilities for the implementation of transportation, it is necessary to consider the rolling stock both in terms of the comfort of transporting passengers and in terms of safety for the environment (Trachenko et al., 2021). When planning cross-border passenger routes, it is necessary to take into account the requirements for the rolling stock of all states through whose territory the route will pass.

If we consider the personnel potential, then for the selection of drivers for passenger routes, it is necessary to consider candidates who are not inclined to create conflict situations, who have positive thinking and, in the case of cross-border transportation, speak the necessary languages to communicate with employees of bus stations and passengers.

III.2. Comparison of Demand and Economic Efficiency

To study the effectiveness of a potential passenger route, it is necessary to carry out a number of calculations. Initially, for each section between two settlements, it is necessary to determine the number of potential passengers (PP) for a certain unit of time, for example, per month, and then determine the number of possible seats (PS) provided by carriers. Then you can calculate the density of demand (in %) using the formula 1.

$$DD = \frac{PP}{PS} * 100\% \quad (1)$$

In the case when the density of demand is below 50%, the route will be economically inefficient, however, to serve potential customers, it can be laid so that passengers can use it, but with a transfer. If the resulting potential demand is between 50% and 75%, further research is needed to determine the frequency of the route, as some routes are more popular on weekdays and some are more popular on weekends. When obtaining a demand density above 75%, it is necessary to plan a systematic movement along this route (Munby & Watson, 2014).

III.3. Plan to Match Supply with Demand

If quantitative indicators were more significant to determine the economic efficiency of the passenger transportation route, then to bring the supply in line with demand, the quality factors of the services provided are much more significant. The quality of the services provided in the implementation of passenger transportation currently means not only the comfort of the cabin of a passenger bus, but also comfort at stops, and, most importantly, the presence of an electronic notification system about the movement of the bus along the route (Frey & Osterloh, 2013). It is especially important to have an electronic notification system when planning a cross-border route, since the imperfection of the system of border and customs control does not allow drivers of such routes to strictly adhere to the time frames of movement along the route. The solution to the problem of long-term border and customs control can be the creation of a passenger database, in which information about passengers will be entered at bus stations or by the driver by scanning biometric passports when boarding a bus on a cross-border route.

If we consider the electronic notification system about the movement of the bus along the route, then it can be an integral part of the mobile application, the functionality of which

will include both obtaining information about the available seats on the route of interest to the passenger, the level of comfort of the bus provided, the availability and location of empty seats. In addition, the fare payment service should be available through the application, in the case of a cross-border route - in any of the currencies of those countries through which the route passes, and through the application the opportunity should be provided at the bus station to enter the relevant data of the international passport into this application (Machado & Davim, 2022).

CONCLUSIONS

Innovation is the basis for progressive growth in all areas of society. It is impossible to consider separately the economic and social effect of the introduction of innovations, since they are closely interconnected and form the quality of life of end consumers of goods and services. When forming innovations in the transport sector, especially in the field of passenger cross-border transportation, there are a number of problems, the solution of which requires an integrated approach both from the side of business and from the side of the authorities, many state structures. The ultimate goal of the formation of innovations in passenger transportation, especially in cross-border ones, is both to increase the degree of freedom of movement of citizens, and the possibility of intercultural and intersocial exchanges, which will give a positive dual effect for the mutual development of participants in such contacts. Another positive effect of introducing innovations in passenger cross-border transportation is the reduction of the carbon footprint, which is one of the main tasks of modern society.

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THE INFLUENCE OF DIGITAL AND SOCIAL MEDIA MARKETING ON CONSUMER BEHAVIOUR

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***Abstract.** In today's digitalized world, where internet and social media undoubtedly have a massive impact on our daily lives (including our buying decisions), it becomes indispensable for any manager or entrepreneur to be well aware about the influence of online marketing (also known as digital marketing) on consumer behaviour, so as to make the most profitable business decisions that are in their best interests. This study is an evaluation of some recently published articles and reports that tell about consumers in digital and social media settings. To write this article, a literature review is conducted and an attempt is made to highlight all the noteworthy ideas. In the end, the paper concludes traditional marketing is at the verge of disappearing as the marketers have found a better and more efficient way to reach the target audience.*

***Keywords:** Digital Marketing, Social Media Marketing, Social Media Influencers*

INTRODUCTION

With a growing number of internet users on a global scale, the average time spent on the internet is also increasing. As a result, people are getting more accustomed with the technology and exposing themselves more to the digital world. This trend is nothing less than an opportunity for companies and businesses who desire to attract the public's attention and be more visible.

Firstly, traditional ways of promoting products and services (such as print marketing) are slowly disappearing. Hence, if a company wants to remain relevant in the marketplace in the long-run, it has to adapt according to the external environment.

Secondly, the emergence of the internet has transformed many industries and the way businesses operate, including the way they promote their products or services. Statistically, the traditional advertising techniques and medium are losing their significance over time. Therefore, business owners are moving away from medium such as newspapers, radio and television. (Navarro, 2022)

Lastly, the arrival of social media platforms like Facebook, Instagram, Twitter and LinkedIn has brought major transformation in people's lifestyles and the way people interact with each other. People, especially the ones from younger generations spend much more time online for different purposes. Although, initially social media appeared with the purpose to build connectivity among people, slowly it has started to be used for completely different purposes. Online or digital marketing as well as social media marketing are the classic examples of modern marketing strategies that are actively used by the companies to create brand awareness.

THE INFLUENCE OF DIGITAL AND SOCIAL MEDIA MARKETING ON CONSUMER BEHAVIOUR

The main purpose of this paper is to analyse the current status of online and digital marketing. Since companies are heavily relying on these practices to sustain in the competitive business environment, it is extremely crucial to understand the marketplace and study the existing literature to gain insights. For this purpose, recent studies, reports and research on online marketing (also commonly known as digital marketing) as well as social media marketing are reviewed. This literature review, apart from providing interesting insights, also serves the purpose of highlighting new emerging concepts such as social media influencing and its impact on younger generations.

I. Methodology

The present study is a result of a thorough analysis of the existing literature. Therefore, the methodology used is literature review. It is a type of academic writing, which helps in understanding a subject in detail.

In this article, the sources of information were collected through a search engine named *Google Scholar* by searching the following keywords: *digital marketing, social media marketing, digital marketing statistics* and *social media marketing statistics*. The primary sources used for literature include articles published in journals between years 2016-2022 while *Statista* is used for citing statistical data about recent marketing trends. Statista is an online platform which provides insights and findings of global and local surveys.

After the selection process, a total of thirteen sources are cited in this paper. Out of these thirteen sources, there are two statistical reports/surveys and an article by a company that provides marketing services. In order to maintain credibility, only trustworthy sources are utilized. All of these sources are mentioned in references.

II. Discussion and Results

II.1. Digital Marketing

Statistics confirm that internet users, around the world, are escalating at an unimaginable speed. On top of that, as per the estimations made by scholars, the fourth industrial revolution has emerged with the arrival of recent advancements in technologies. As a result of these sudden changes, the lifestyles of people have transformed, including the way in which consumers perceive the outer world, communicate, engage, interact and make buying decisions (Faruk et al., 2021). Besides, social networking platforms like Facebook have further contributed in affecting the way people interact with one another. Consequently, the buying behaviour of the current consumers have also been impacted as they are spending much more time on social media platforms for different purposes such as looking for information and purchasing products online at a few clicks. According to Faruk et al. (2021) all these aspects have led the marketers to rethink their traditional approaches of promoting products and shift to other forms of media for advertising.

Advertising may utilize any type of media in order to achieve its final objectives. Some common examples of media include radio, TV, print, internet. The global advertising expenditure has been increasing every year and with the growing number of internet users, advertising expenditure through online media is surging because marketers are noticing more potential in online marketing than in traditional marketing. ¹Because of this reason, the internet

is believed to be the most significant medium for promoting goods or services. To further support this statement, estimates clearly show that in the year 2022, out of the total amount that was spent in advertising, 62% of it was utilized in online advertising. This simply suggests that traditional forms of marketing such as print marketing and promotion through medium other than the internet, that is, radio, television and newspaper are struggling to maintain their relevance (Navarro, 2022). All these aspects have contributed in shifting to digital marketing. This has not only enabled the marketers to reach the target audience in a more effective way, but has also allowed them to study the behaviour of potential buyers more efficiently (Faruk et al., 2021).

According to Lamichhane (2022), digital marketing represents reaching out to potential buyers with the help of the internet by using numerous digital channels or tools like email and social media. Hence, it has an immense impact on people's life, habits and their buying behaviour. As a matter of fact, every coin has two sides. On the one hand, Faruk et al. (2021) claim that digital marketing allows businesses to have benefits such as increased revenues, more customer engagement, higher customer satisfaction and customer loyalty as well as lower additional costs like service and customer acquisition costs. On the other hand, it also represents a challenge for the businesses as it can also be used by unskilled people. As per Di Domenico et al. (2021), such people may also act as a threat to companies if they intend to use it inappropriately or unethically with the purpose of harming a company's reputation. There is known to be an increasing concern regarding the issue of "Fake news" among the authorities, business owners as well as scholars. While many researchers have mainly paid attention in the past to the problem of fake news in the political context, the subject of the effects of disinformation on social media on marketing and consumers remains unfocused (Di Domenico et al., 2021).

Because of the increasing technological advancements, coupled with the emergence of concepts like going green, traditional marketing or paper marketing is at the verge of disappearing. Taking into consideration the growing internet users, digital marketing has an immense potential. The developing nations have already started to embrace it. Moreover, large-scale companies have already adapted themselves for this change whereas small-sized enterprises are slowly transforming and using digital marketing techniques and tools are becoming a part of their marketing strategy (Lamichhane, 2022).

II.2. Social Media Marketing

Initially, the purpose of social media was to allow people to connect with their friends, family, relatives, colleagues and acquaintances. This helped them in exchanging their views, thoughts and opinions and even exchange content like pictures, videos and documents. However, Madhura and Panakaje (2022) state the organizations were quick to adopt them as a new communication tool to reach customers easily. Since the consumers are spending more time on social media platforms, Faruk et al. (2021) believe that marketers have also started to apply their strategies in these media channels so as to make the most of this opportunity. In fact, according to the literature, it is considered that the digital world opens new doors for the marketers and salespeople who seek more engagement from their target audience to sell them suitable goods and services. Therefore, one may conclude that digital media platforms allow businesses the opportunity to form relationships with the targeted segment of customers.

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Previous literature (Madhura & Panakaje, 2022) indicates that social media serves various benefits such as acting as a tool that helps people to interact with one another. There are many reasons why it has been so successful in attracting masses that spend a lot of time online (Mason et al., 2021). Firstly, people are able to easily derive gratification by sharing information/photos. In fact, the Uses and Gratification theory further supports this statement (Malik et al., 2016). Secondly, Mason et al. (2021) mentions that due to a phenomenon named as cognitive absorption, social media users lose the ability to remain conscious of their physical surroundings and time. This also somehow enables them to temporarily escape the unwanted situations or circumstances of the present. Thirdly, it offers the users a sense of high level of joy that they don't usually experience in real life in a few clicks. This comes along with a sense of control that further makes the users more than satisfied (Mason et al., 2021).

Companies are increasingly creating an online presence on different platforms such as Facebook, Instagram and Youtube. Some social networking channels are preferred over others because they are able to attract people, collect their users' data, thereby helping the companies in reaching the right kind of audience, which is suitable for their products and services. In order to gather information, companies must practice effective communication, which ultimately allows them to better understand their target audience and offer them what they are searching for, ultimately providing them with a better customer experience and higher satisfaction. The information gathered about the users is also helpful in increasing customer engagement (Madhura & Panakaje, 2022).

Many aspects of human life have changed since the arrival of the internet including the way customers interact. For instance, Jamil et al. (2022) explains that creation of modern communication channels has allowed the clients to enhance their overall experience as a customer. In the present-day context, firms are sharing brand information, which reaches millions of people online. This helps companies in building and sustaining online communities in a much more efficient way.

Social media platforms such as Facebook and Instagram contribute in creating a sense of belongingness and community for their users without actually having any physical contact. A virtual brand community is a group of people who buy things from a specific brand. Clients are interested in more than simply purchasing products and services; they want to have meaningful experiences and build long-lasting connections with other clients that share their common interest (Jamil et al., 2022).

Previous studies (Mason et al., 2021) demonstrate that customer's social media marketing behavior has also undergone a change due to COVID-19 pandemic. Since the beginning of the pandemic, changes in consumer's decision-making behaviors were identified. During the lockdown periods, when social distancing was a necessity, social media offered consumers the opportunity to interact without any restrictions online. In such times, social media marketing strategies were seen as a competitive advantage for companies. To conclude, the usage of social media was further accelerated by the COVID-19 pandemic.

When it comes to brand promotion on social media handles, another new scheme that brands have started to adopt is social media influencing (de Castro et al., 2021). Social media influencing is a marketing strategy in which a person is in the position to "influence" or "change" the mindset of fellow members within the social media community. The greater

influence a person has over the online community, the more valuable it will be for brands who wish to promote their products or services. Therefore, it is a mechanism that can be utilized by organizations for the purpose of brand awareness.

SMM (Social Media Marketing) is known to have several benefits as a modern marketing strategy. Besides creating and improving brand awareness, SMM makes the communication link between companies and potential clients smoother. Due to this motive, it is considered as a new marketing strategy but there is very limited research on its relationship with customer intention and retention (de Castro et al., 2021).

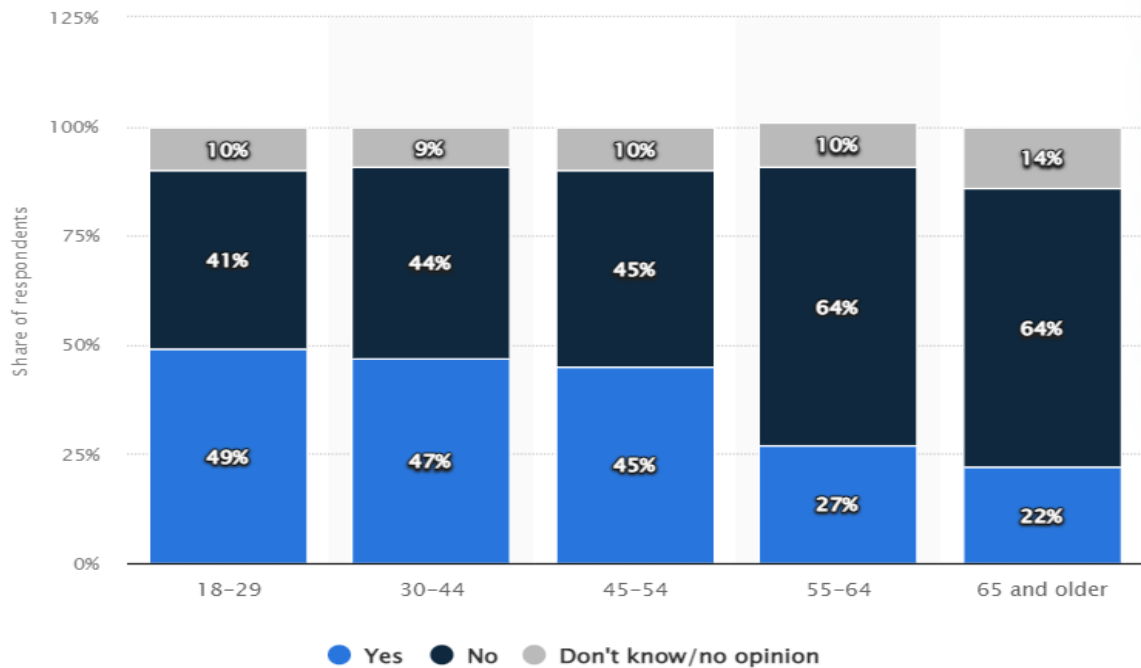


Figure no. 1 U.S. consumers influenced by social media ads to purchase products in 2017, by age

Source: Dencheva, V., 2017 (Statista)

According to the findings of an online survey conducted in 2017 among US consumers aged 18 and above, 49% of the respondents of the age between 19 and 29 years confirmed to have bought products shortly after seeing an advertisement on social media (Dencheva, 2017). The figure no. 1 clearly demonstrates that the percentage of people buying products after viewing an ad on social media has a strong association with the age that they belong to. Observing this graph, one may draw this conclusion: *the older you are, the less influence social media has on your buying behavior.*

Usually, the most basic way to judge an individual's influence is by looking at the number of followers that the person has on different social media platforms Twitter, LinkedIn, Facebook and Instagram. However, it is also important for the businesses to take into consideration the age groups and the purpose for which the platform is used. For instance, Instagram is a platform which is dominated by younger generations while the Facebook community includes all age groups. The figure below shows the most popular social media sites, the purpose of their usage, the number of active users as well as the age group to which they belong.

THE INFLUENCE OF DIGITAL AND SOCIAL MEDIA MARKETING ON CONSUMER BEHAVIOUR

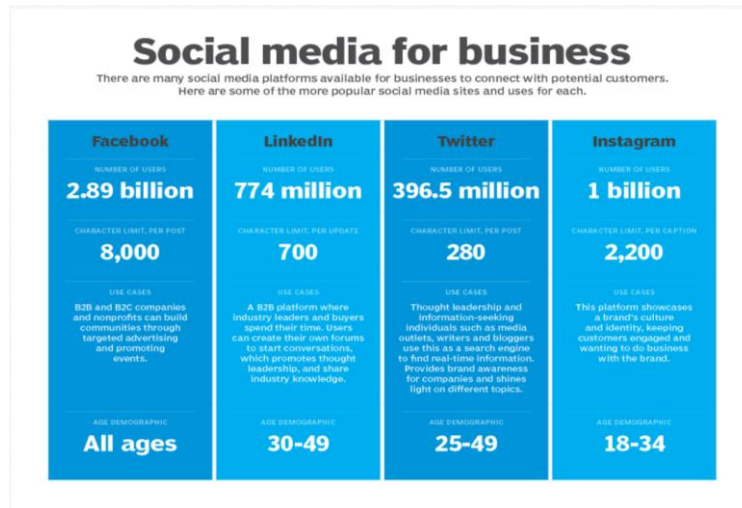


Figure no. 2 Popular social media platforms
Source: TechTarget, 2019

Once analyzing the particular target audience for their products and services, businesses can select which social media site is suitable for promotion. Furthermore, de Castro et al. (2021) explain that based on their preference, they can choose social media influencers (SMI) to create brand awareness among the specific age group identified and selected as a target audience. It is interesting to note that SMI is more common among adolescents because younger generations spend relatively more time online in comparison to the older ones. Hence, due to greater exposure, young people are more prone to get influenced by the content posted by influencers. Therefore, one may conclude that young people such as teenagers and adolescents are more likely to get influenced by SMIs. However, it is equally significant to mention the fact that influencers have the ability to influence a person's behavior or attitude in both positive and negative manner (de Castro et al., 2021).

Social media is a powerful tool to attract people, especially the ones belonging from new generations and there are different mechanisms that can be used to attract these potential buyers. Several studies (de Castro et al., 2021) confirm that Generation Z is the most active age group when it comes to spending time on social media.

In a survey, members of Generation Y and Z based in the US were asked about the category of products they were tempted to buy due to some brands' posts on social media. Figure no. 3 is a graphical representation of the categories of products answered by the respondents that participated in this survey. As shown in the figure below, the majority of the respondents claimed to buy apparels due to online influential content. These are followed by beauty and make-up products (22.92%). 15.10% of respondents confirmed buying tech products as a result of social media influence, which was followed by home products (11.46%) and food and beverages (8.85%). Therefore, Chevalier (2021) concludes that more than half of the participants agreed to buy clothing and beauty/make-up products because of social media content.

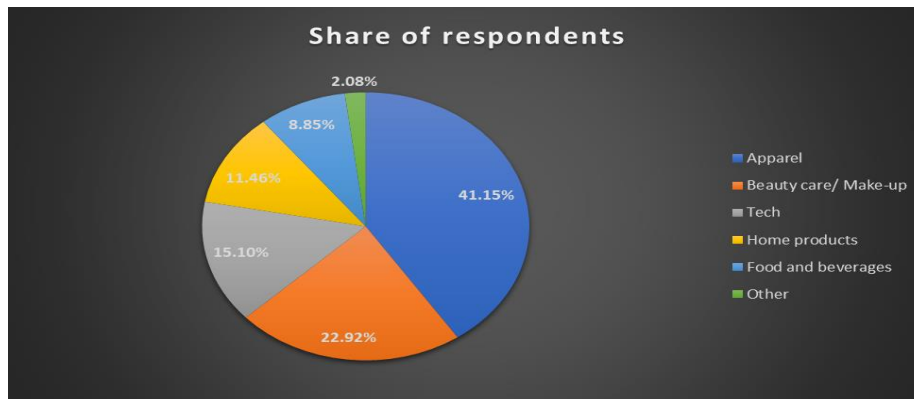


Figure no. 3 Product categories that Generation Z and Millennials purchased more as a result of social media brands' posts and/or influencers' content in the US as of March 2021

Source: Chevalier, S., 2022 (Statista)

Such studies show that social media can be used as a tool to attract potential consumers and increase content engagement and sales. According to de Castro et al. (2021), this technique or method of using social media by the companies, as an instrument to commercially promote or advertise different products and/or services is known as social media marketing (SMM).

CONCLUSIONS

With the rise in the number of internet users and average time spent online, businesses are also shifting online and adapting online advertising. Having lost its relevance in the marketplace, traditional marketing is at the verge of disappearing. In the present-day context, social media is a powerful tool that assists companies in achieving their goals in a more efficient way. By using social media marketing as a means of advertising, organizations are creating brand awareness among the target audience. With the emergence of social media influence, businesses have discovered a new strategy to attract people from younger generations.

Several studies have indicated that marketers are using social media marketing as a tool to attract target audience. Techniques such as social media influencing are transforming the marketing industry and thus, the business owners will have to adapt according to the recent shifts.

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DECARBONIZATION AS ONE OF THE WAYS TO SOLVE THE PROBLEMS OF GLOBALIZATION

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***Abstract.** Half a century, globalization has been a driving force in the development of world economies. Besides positive effects, globalization has also caused negative consequences: accelerated climate change, degradation of natural resources, and increased emissions. That is why, in the last decade, the importance of climate and decarbonization policies has increasingly appeared on the world agenda. In addition, recent geopolitical events, including COVID-19, the Russian invasion of Ukraine, further emphasize the importance of green solutions for recovery and decarbonization of countries' economies. This article aims to highlight the importance of decarbonization policies and identify the possibility of solving environmental and energy problems caused by globalization. Through an analysis of existing literature and different countries' policies, the article identifies the potential of decarbonization policies to mitigate the negative impacts of globalization on the environment and energy sector. The findings suggest that the adoption of decarbonization policies can lead to a reduction in greenhouse gas emissions, improved energy efficiency, the development of renewable energy sources, and green jobs, ultimately contributing to a more sustainable and resilient global economy.*

***Keywords:** Globalization, decarbonisation, renewable energy, climate change, green jobs, energy efficiency.*

I. Introduction

For the last fifty years, globalization has been a key driver of economic growth and development worldwide. However, the rapid expansion of economic activity has also caused significant negative impacts on the environment, including climate change, resource depletion, and increased greenhouse gas emissions. As a result, in recent years, the importance of decarbonization policies has increasingly come to the forefront of global discussions.

Moreover, the recent geopolitical events, such as the COVID-19 pandemic and the Russian invasion of Ukraine, have highlighted the need for sustainable and resilient economies. In response, many countries have increased their focus on decarbonization policies, recognizing the importance of green solutions for recovery and the decarbonization of their economies.

I.1. Globalization impact

The adverse impacts of globalization on the environment have been widely documented by various studies. A study by the United Nations Environmental Programme (UNEP) estimates that global greenhouse gas emissions increased by over 70% between 1970 and 2004, with the majority of the increase being attributed to energy-related activities (Zhang, 2007). The Intergovernmental Panel on Climate Change (IPCC) has also identified the increasing concentration of greenhouse gases

in the atmosphere as a key driver of climate change, leading to a range of environmental impacts such as rising sea levels, more frequent natural disasters, and loss of biodiversity (IPCC, 2022).

I.2. Geopolitical effect

The COVID-19 pandemic has exposed the vulnerabilities of the global economy and highlighted the need for more sustainable and resilient systems. The pandemic has led to disruptions in global supply chains, decreased demand for certain goods and services, and significant economic losses. Governments and businesses have recognized the need to invest in more sustainable and resilient systems that can withstand future shocks.

At the same time, the Russian invasion of Ukraine has led to a renewed emphasis on energy security and the need to reduce dependence on fossil fuels. Many countries in Europe rely heavily on Russian gas imports, and the conflict has highlighted the risks of such dependence. Governments have recognized the need to invest in renewable energy sources and reduce their reliance on fossil fuels to ensure energy security and reduce geopolitical risks.

II. Methodology

The methodology is focusing on a comparative analysis of established regulatory practices regarding the decarbonization of countries' economies, as well as the systematization of research and forecasts of scientists regarding the importance of decarbonization.

In the context of the energy sector and the development of renewable energy sources, the methodology will include an analysis of policy implementation practices that aim to promote the growth of renewable energy technologies and reduce the reliance on fossil fuels. This analysis will include a review of policies such as feed-in tariffs, renewable portfolio standards, tax incentives, and subsidies for renewable energy technologies. Overall, the methodology of the article will involve a comprehensive analysis of policies and practices that aim to promote the growth of renewable energy technologies and reduce the impact of globalization on the environment. By focusing on the energy sector and the implementation of renewable energy policies, the article will provide insights into the ways that decarbonization can be used as a means of addressing the challenges posed by globalization.

III. Results

III.1. Scientific view

Against this backdrop, there has been a growing recognition of the need for decarbonization policies as a means of mitigating the negative environmental impacts of globalization. Decarbonization is the process of reducing or eliminating carbon dioxide and other greenhouse gas emissions from energy systems and other sectors. A report by the International Energy Agency (IEA) highlights the importance of decarbonization in limiting global warming to well below 2 degrees Celsius above pre-industrial levels, as outlined in the Paris Agreement (IEA, 2021).

There are many scientific articles that emphasize the importance of decarbonization policies.

A large number of such articles focus on mitigating climate risks and reduce emissions through decarbonization (Rockström, 2017). The article "A review of the global climate change impacts, adaptation, and sustainable mitigation measures" (Abbass et al., 2022) is a sectorial assessment of climate change mitigation and adaptation approaches worldwide in the aforementioned sectors and the associated economic costs. The authors argue that decarbonization policies are necessary to mitigate the worst impacts of climate change and propose measures for mitigating negative effects in different sectors.

William Nordhaus in his article "The importance of carbon pricing for meeting climate targets" (Nordhaus, 2017) argues that carbon pricing is essential for achieving the necessary emissions reductions to address climate change. The author discusses the economic benefits of carbon pricing and how it can help drive innovation and investment in clean energy technologies.

The article "Emissions Reduction Policies and Their Effects on Economy" examines the relationships between emissions-reducing policies and their effect on the country's economic growth (GDP) using carbon tax and CO₂ emission as explanatory variables and population and R&D as control variables (Gurtu et al., 2022).

Another analysed block of scientific articles focuses on the economic benefits of decarbonization policies, arguing that they can promote job creation and economic growth. The authors write about pro-environmental economic model that changes the labor market and creates a Green Jobs (Sulich and Sołoducho-Pelc, 2022), analyses connection between the further reduction of emissions and the short-term and long-term growth of employment in the energy sector (Koasidis et al., 2022).

In addition, it was observed that when analyzing decarbonization policies, scientists put a lot of emphasis on the energy sector and related policies. Scientific results show that renewable energy in context of globalization have a significant impact in reducing CO₂ emissions (Ulucak & Yucel, 2021). The scientists came to a conclusion that countries should invest in renewable energy and environmental innovation aligned with the growth (Sahoo et al., 2022), enhance the quality of governance and democracy, attract clean foreign direct investments, promote renewable energy use, and adopt clean economic growth strategies to decarbonize their respective economy (Hamid et al., 2022).

III.2. Policy responses

Moreover, many countries have increased their focus on decarbonization policies. Governments have recognized the importance of investing in green solutions for recovery, such as renewable energy sources, energy efficiency, and sustainable infrastructure.

Analyzing the policies of different countries regarding decarbonization and recovery, it is worth highlighting the most widespread policy solutions of the countries on the reduction of emissions and the negative consequences of globalization processes:

- 1) Carbon pricing: A carbon price is a fee imposed on fossil fuels' carbon content to incentivize the transition to low-carbon alternatives. A carbon tax or cap-and-trade system reduces greenhouse gas emissions from industries that contribute to globalization, such as shipping, aviation, and manufacturing.
- 2) Renewable energy incentives: Policies that encourage the development and deployment of renewable energy sources, such as solar, wind, and hydroelectric power, and help reduce the carbon footprint of globalization. This can include feed-in tariffs, tax credits, and subsidies for renewable energy investments.
- 3) Energy efficiency standards: Regulations that require more efficient energy use in buildings, appliances, and vehicles and focus on reducing energy consumption and greenhouse gas emissions from globalization. This includes energy performance standards, fuel efficiency standards, and building codes.
- 4) Sustainable transport policies: Policies that encourage sustainable modes of transport, such as public transit, biking, and walking, reduce the environmental impacts of transportation associated with globalization. This includes public transport infrastructure investments, electric vehicle incentives, and congestion pricing.

- 5) Circular economy initiatives: A circular economy is an economic system in which waste is minimized, and materials are reused, repaired, or recycled. This is used to reduce globalization's environmental impacts by reducing resource consumption, waste generation, and greenhouse gas emissions. Policies encouraging circular economy practices include extended producer responsibility, product labeling, and waste reduction targets.

III.3. Renewable energy incentives

Renewable energy policies are measures designed to promote the development and deployment of renewable energy sources. Renewable energy policies can play an important role in mitigating the negative environmental impacts of globalization, by reducing greenhouse gas emissions from economic activities associated with globalization.

Moreover the attack of the Russian Federation on Ukraine acted as a powerful catalyst for decarbonization processes, forcing the countries of the world community to rethink their perception of the Russian Federation's fossil fuels as a source of funding for its military aggression (Kudirko et al., 2022).

In recent years, countries around the world have actively implemented renewable energy policies to promote the development and deployment of renewable energy sources, as a means of mitigating the negative environmental impacts of globalization and become more energy independent. These policies include feed-in tariffs, tax incentives, renewable energy standards, and carbon pricing, among others. The European Union proposed the European Green Deal a centerpiece of its recovery plan, investing in renewable energy, sustainable transport, and circular economy practices.

The European Union's Green Deal is a comprehensive plan aimed at achieving climate neutrality by 2050, with a target of reducing greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels. The plan includes significant investments in renewable energy, sustainable transport, and circular economy practices, among other initiatives. The European Union's investment in renewable energy is particularly noteworthy, as the bloc has set a target of sourcing 32% of its energy from renewable sources by 2030.

One of the key components of the European Union's Green Deal is the EU Renewable Energy Directive, which aims to increase the share of renewable energy in the EU's final energy consumption to at least 32% by 2030. The directive sets binding targets for each EU member state, taking into account their starting points and national circumstances. This policy has already had a significant impact on the decarbonization process in Europe, with renewable energy sources accounting for 34.6% of the EU's electricity generation in 2020, up from 31.6% in 2019. This progress is expected to continue in the coming years, as the EU continues to invest in renewable energy infrastructure and technologies.

The United States has also committed to significant investments in renewable energy and infrastructure as part of its Build Back Better plan. The plan includes a proposed 2 trillion USD investment in clean energy over the next decade, with a focus on achieving 100% clean electricity by 2035. This investment is expected to create millions of new jobs in the renewable energy sector, while also reducing greenhouse gas emissions and increasing energy security. The plan also includes significant investments in electric vehicles, energy efficiency, and sustainable buildings.

The United States has implemented a range of federal and state-level policies to promote renewable energy, including tax credits, loan guarantees, and renewable energy standards. Many states have also implemented net metering policies, which allow households and businesses to sell excess renewable energy back to the grid.

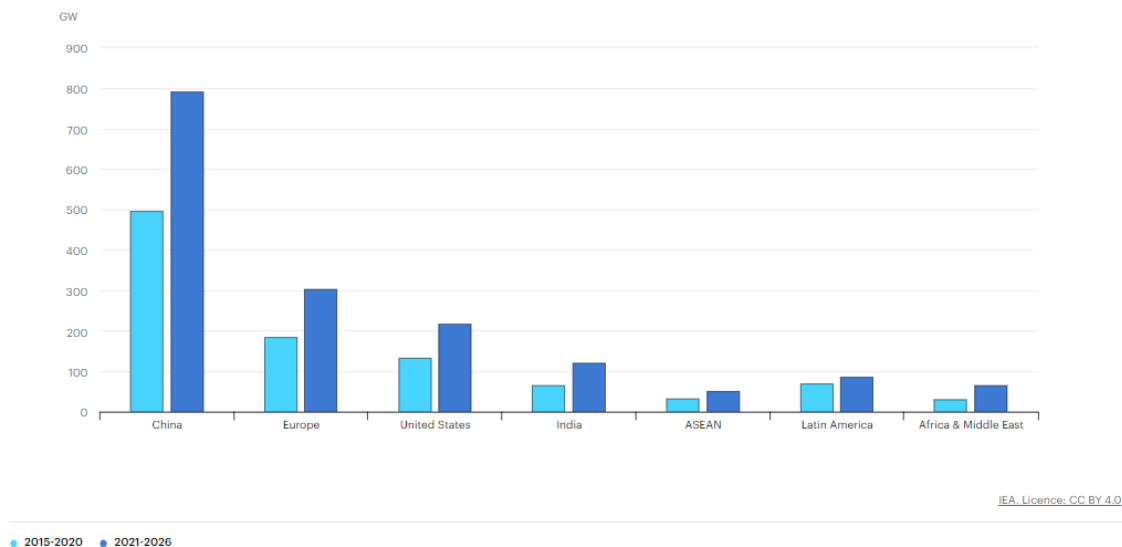
Other renewable energy policies in different countries around the world:

1. Germany: Germany is a world leader in renewable energy, with a goal to generate 65% of its electricity from renewable sources by 2030. The country has implemented a feed-in tariff system, which guarantees a fixed payment for renewable energy generated by households, businesses, and utilities.
2. China: China is the world's largest producer of solar and wind energy, and has set a target to achieve 20% of its energy mix from non-fossil fuel sources by 2030. The country has implemented a range of policies to support renewable energy, including subsidies, tax incentives, and feed-in tariffs.
3. Japan: Japan has set a goal to achieve a 22-24% renewable energy share by 2030, and has implemented a feed-in tariff system to support the development of renewable energy. The country has also implemented energy efficiency standards and a carbon pricing system.
4. India: India has set a target to achieve 40% of its electricity generation from non-fossil fuel sources by 2030, and has implemented a range of policies to support renewable energy, including feed-in tariffs, tax incentives, and renewable energy certificates.
5. Brazil: Brazil has implemented a range of policies to promote renewable energy, including tax incentives, feed-in tariffs, and a renewable energy auction system. The country has also implemented biofuels mandates, which require a certain percentage of transportation fuel to come from renewable sources.

IV. Statistical Analysis

The transition to renewable energy sources such as solar, wind, and hydropower has been identified as a critical step in achieving decarbonization goals. A study by the European Union's Joint Research Centre (JRC) highlights the potential of renewable energy sources to contribute to decarbonization efforts, with the authors noting that renewable energy technologies have become increasingly competitive with fossil fuels in terms of cost (Tsiropoulos et al., 2020).

Figure 1. Renewable electricity capacity growth by region/country, main case 2015-2020 and 2021-2026



Source: International Energy Agency (International Energy Agency [IEA], 2021)

Scientists and experts have emphasized the importance of decarbonization policies in addressing the challenges of climate change and environmental degradation caused by globalization. A study by the National Renewable Energy Laboratory (NREL) in the United States found that in all modeled scenarios that the health and climate benefits associated with fewer emissions exceed the power system costs to get to 100% clean electricity (Denholm et al., 2022). In addition, the report notes that such a green transition is quite real and not only in United States.

The International Energy Agency is forecasting the growth of renewable capacity to accelerate in the next five years, accounting for almost 95% of the increase in global power capacity through 2026 (International Energy Agency [IEA], 2021).

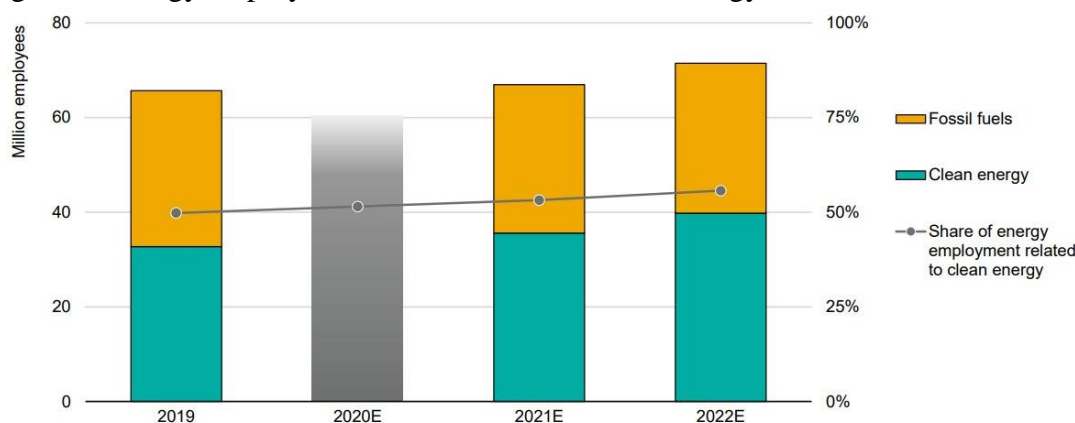
Moreover, according to the IEA, the forecast increase in renewables is now 30% higher than the growth volumes anticipated before the Russian full-scale invasion into Ukraine. Global renewable energy capacity is set to almost double, increasing by 2,400 gigawatts to reach 5,650 gigawatts by 2027 (International Energy Agency [IEA], 2022).

Such predictable growth contributes not only to the reduction of pollution and emissions, but also to the growth of other economic indicators, in particular the number of jobs, green jobs.

Clean energy employment is “rapidly growing” and now accounts for more than half of all energy sector jobs, according to a new report.

The first World Energy Employment Report from the IEA finds that hiring in clean energy has pushed energy sector employment globally above pre-pandemic levels – despite the oil and gas sector still struggling to recover from big layoffs in the initial stages of COVID-19 (International Energy Agency [IEA], 2022). Russia’s invasion of Ukraine and the energy crisis that followed have seen countries looking to “accelerate the growth of homegrown clean energy industries,” said IEA Executive Director Fatih Birol.

Figure 2. Energy employment in fossil fuel and clean energy sectors, 2019-2022



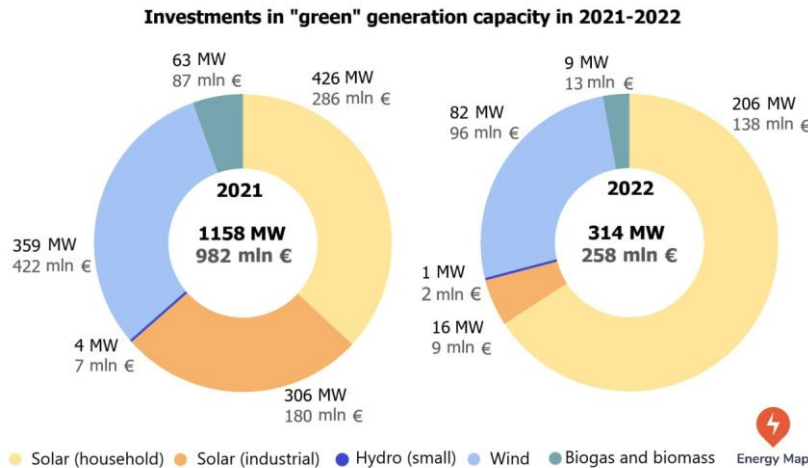
IEA. All rights reserved.

Source: International Energy Agency (International Energy Agency [IEA], 2022)

Thus, Russia's war against Ukraine became a catalyst for the introduction of renewable energy technologies. And it is worth noting, not only in the world, but also in Ukraine, even despite the constant shelling of the energy infrastructure.

With the beginning of the full-scale invasion, especially during the difficult winter period, Ukrainians began actively install home installations in order to provide themselves with energy and be energy independent. In 2022, the share of investments in household solar power accounted for more than 60% of total investments in green generation capacities.

Figure 3. Investments in “green” generation capacity in 2021-2022



Source: Energy Map

V. Conclusions

The article highlights the significance of decarbonization policies in promoting economic growth and job creation, while reducing the carbon footprint of economic activities. This is in line with previous research findings which have demonstrated that the transition to a low-carbon economy can lead to significant economic benefits, including job creation, increased energy security and reduced costs of energy production. For instance, a study by the International Energy Agency found that the renewable energy sector has the potential to create up to 42 million jobs by 2050 (International Energy Agency [IEA], 2022). This underscores the economic potential of decarbonization policies in promoting sustainable economic growth and reducing the risks of future shocks.

Moreover, the article highlights the importance of sustainable and resilient systems in reducing the risks of future shocks and providing solutions for energy independence. This is in line with previous research which has emphasized the need for resilient infrastructure and systems to mitigate the impacts of climate change and other shocks. For instance, a study by the Global Commission on Adaptation (GCA) found that investing in climate adaptation measures can yield significant economic benefits, including \$7.1 trillion in net benefits by 2030 (Verkooijen, 2019). This highlights the importance of adopting a holistic approach to decarbonization, which not only focuses on reducing emissions, but also on building resilient systems that can withstand future shocks and provide long-term solutions for energy independence.

In conclusion, the article provides a compelling argument for the importance of decarbonization policies in promoting sustainable economic growth and reducing the risks of future shocks. The research has demonstrated the economic potential of decarbonization policies, as well as the need for resilient systems to mitigate the impacts of climate change and other shocks. As such, policymakers should prioritize the development and implementation of ambitious decarbonization policies at the national and international levels, in order to promote sustainable economic growth, create new opportunities for job creation and reduce the risks of future shocks.

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STRATEGY OF SALES AND COMMUNICATION OF HOTEL SERVICES DURING THE WAR

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Abstract. *In the conditions that have developed in the economy of Ukraine, the organization of processes in the hotel business and the formation of sales and communication strategies have undergone changes, as well as the tourism sector as a whole. Each hotel enterprise needs to clearly understand the plan of actions and decisions to ensure the correct operation of the enterprise, adapted to external changes. The purpose of the article is to study the essence and tasks of forming a strategy of sales and communication of hotel services during the war, studying the main aspects. After February 24, 2022, most Ukrainian businesses and enterprises, in particular hotels and restaurants, faced uncertainty and confusion about what to do next. The tourist flow came to a sudden halt along with air and rail connections. A significant number of workers lost the opportunity to be present at workplaces or went abroad. Due to the hostilities, the offer on the hotel market of Ukraine has decreased. The objective of survey providing in the study is the determination of regional trends in the development of the hotel market of Ukraine during the war and understanding the peculiarities of marketing strategies that affect the involvement of new hotel product consumers' segments through the booking channels and the formation of a positive image of hotels. Methods of generalization, analysis and synthesis, comparison, scientific abstraction and systematization were used to fulfil the set tasks and achieve the main goal of the research of strategy of sales and communication of hotel services during the war.*

Keywords: *sales, distribution, communication strategy, hotel services during the war*

Introduction

Since 24 February 2022, most Ukrainian businesses and enterprises, including hospitality and restaurant companies, have faced uncertainty and confusion about what to do next. Tourist arrivals came to an abrupt halt, along with air and rail services. A significant number of employees lost the ability to be present at their workplaces or went abroad. In 2022 during the war, it was confirmed the association between job insecurity and job stress, and the relationship between job insecurity and turnover (Ergun et al.,2023). As a result, the low pay level in the hotel and restaurant business influenced on decreasing of employment and migration of staff (Levytska et al., 2023). The hostilities, supply in the Ukrainian hotel market has decreased, with many properties not operating for security reasons, lack of demand, technical reasons or damage from shelling. For an effective recovery of hospitality

and tourism, Ukraine may take the experience of other countries. The war in Croatia destroyed a lot of infrastructure, cultural heritage and reputation of a safe destination. It took a couple of years to regain all of that to the starting position and then acquire the development of the same (Belin, 2021). Japan has experienced many crises caused by viruses, epidemics, natural disasters such as typhoons, earthquakes, tsunamis, and the ravages of war, which led to the economic stagnation (Hara et al., 2022). The problem with migration can be solved as in Sweden, where the refugees being there temporarily—as soon as the war ended, they were expected to return home (Nauman, 2022).

Currently, the state of the hotel market in Ukraine varies from region to region: how such facilities operate and whether they are open at all depends on the region in which they are located and how far they are from the war zone. Hospitality during the refugee crisis, apart from a cultural value and societal response to the protracted refugee influx,) is a discursive strategy of socio-spatial control used by humanitarian agencies, local and national authorities (Carpi & Pınar Şenoğuz, 2018). The hotel's orientation towards the reaction on the contemporary situation is closely related to the rebuilding its work in order to be useful and help those who left their homes because of the war (Petráková et al., 2022).

The demand for hotels in Western regions of Ukraine: Ivano-Frankivsk, Lviv, Ternopil and Zakarpattia was formed by international companies and diplomatic missions that relocated to safer regions. More than one thousand enterprises have been transported from the eastern and central part of Ukraine (Zhuravka et al., 2023). Hotels there are fully operational and there are no prerequisites for closing or suspending their operations. In Kharkiv, Sumy and Mykolaiv, the main goal is to preserve the facilities. The hotels have been suspended as accommodation facilities. The teams are focusing their efforts on volunteer support in the war against the Russian aggressor. According to (Korneyev et al., 2022), the Ukrainian business is gradually returning to life. Hundreds of enterprises are resuming work, and the state is contributing to this.

We should also pay special attention to the operation of international branded hotels: such accommodation facilities located in large cities have mostly suspended operations. This is due to security policies and foreign management. In addition, their audience is foreign tourists, who are not coming to Ukraine at the moment. Today, international hotels such as Hilton Kyiv, InterContinental Kyiv, both Radisson Blu Hotel properties, as well as Fairmont Grand Hotel Kyiv, Mercure Kyiv Congress, Holiday Inn Kyiv and others have resumed operations in the capital.

Analysis of research and problem statement

Actuality of the research: Hotels that did not stop operating had to transfer all business processes to an unprecedented new format. At the same time, they had to provide guests with the usual level of service and safety, help employees and their families, and engage in volunteering: providing shelters, hosting IDPs, providing humanitarian aid, etc. Often, this had to be done with a smaller team, as hotel staff also tried to move to safer places or emigrate abroad, or employees joined the ranks of the Armed Forces or the Defense Organization. However, if the main issue at first was how to assemble and retain a team, now it is how to load it in the face of low demand and a small number of guests.

Another challenge for hotels was the disruption of supply chains. Due to the lack of fuel

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and other reasons, some logistics processes were disrupted, which affected the provision of facilities with the necessary supplies for operation or launch. For example, at Ribas Hotels Group, logistics disruptions affected hotels under construction. And hotels experienced interruptions in the supply of products in the first weeks of the invasion. The curfew also changed the operation of accommodation facilities. Due to time constraints, the process of check-ins and check-outs is somewhat complicated, with the main workload falling on the day shift. In addition, due to the curfew, employees sometimes live on the premises of hotels. Restaurants and bars and other services, such as beauty salons, SPA areas, etc., are also limited. Some hotel services are not available during air raids. This is a separate point in the operation of facilities that have implemented enhanced security standards. They include notifying guests about air raids and their termination, arranging safe places/shelters where people can wait out the danger, etc.

Method

Data were collected from April 2022 to December 2022. The study adopted mixed research methods because it allows for the collection of both structured quantitative data through a survey and qualitative data through interviews with the hotel managers. The survey consists of 10 questions with the answers stated in different forms such as “yes or no”, multiple choice, open questions. The questions were based on exploring current situation focusing on peculiarities in hospitality sales during the war. 134 hotel managers from different regions of Ukraine completed the survey or were interviewed. MS Excel statistical tools were used to analyse the quantitative data gathered from survey, interviews to present the trends and market situation in hospitality in Ukraine.

Results

The current situation of the Ukrainian hotel industry can be described as a lack of a market. Except for some regions in the west of the country, where the situation is better. Such segments of guests as leisure and corporate are completely absent. Since the beginning of the full-scale war, two categories of guests have dominated the structure of Ukrainian hotels. First and foremost, it was individual guests who either temporarily stayed in accommodation facilities and then returned home or found permanent accommodation in a new city, or travelled further afield. There was also demand from companies and diplomatic missions that relocated their teams to safer areas. For example, in the city hotels of Ribas Hotels Group in Odesa, internally displaced people accounted for about 70% of guests in the first months of the war, but now they are relatively few - 10%.

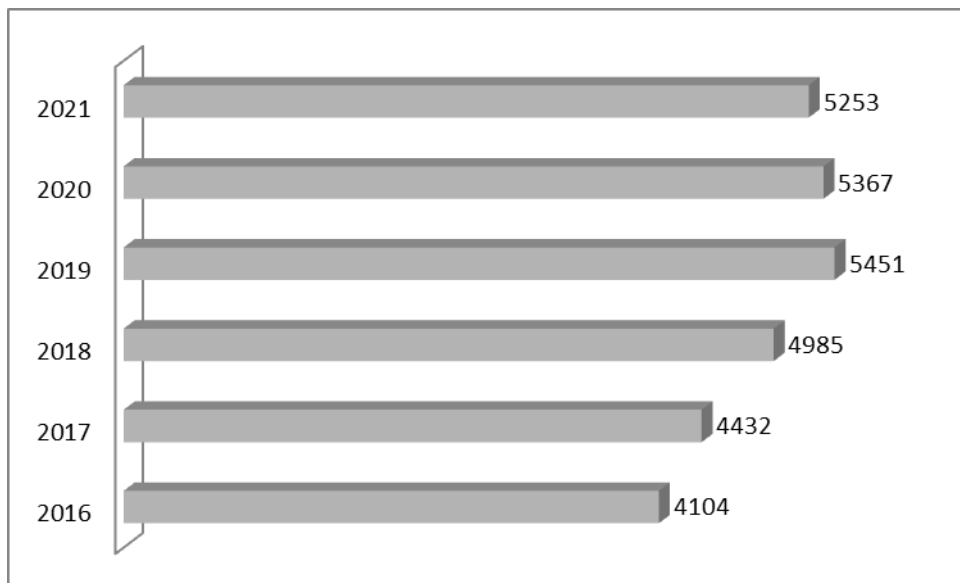
These are mainly people from Kherson and Mykolaiv. In March, Poltava's Premier Hotel Palazzo was almost 70% occupied by refugees from Kharkiv. The hotel hosted and fed people for free. In March and April, Premier Hotel Dnister in Lviv allocated a significant number of rooms for free accommodation for refugees and also converted one of its conference rooms into a free hostel. The second category of guests includes media representatives, diplomatic delegations, international volunteer organisations, etc. The operators especially note media representatives: at the beginning of the hostilities, some properties, such as the Bristol in Odesa and the Premier Palace Hotel in Kyiv, had so many

such guests that the hotels became a kind of hub for international journalists.

According to the results of the analysis of the market of hotel services it is established that in the structure of hotels of Ukraine 42% are hotels in big cities, their number by regions is 5253 objects (figure 1).

Figure 1. Number of hotels in Ukraine 2016 - 2021

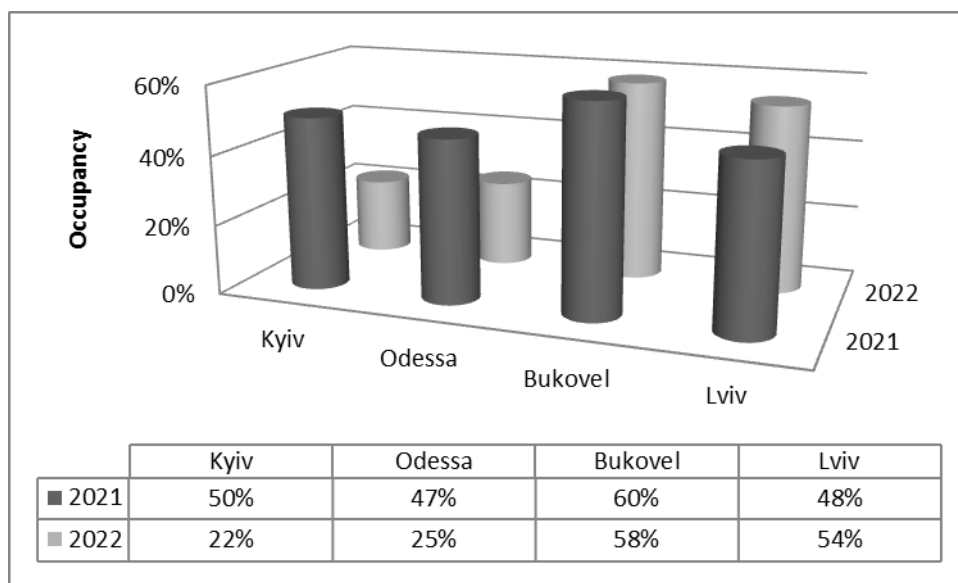
Source: Own development by authors



The number of hotels according to official statistics in 2022 were decreased compared to 2021. This is caused by occupation of part of Ukraine and because the number of certain facilities were destroyed (figure 2).

Figure 2. Dynamics of the occupancy in Ukrainian hotels in 2021-2022

Source: Own development by authors



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During the period of research, we observe that in 2021 - 2022 the occupancy decreased in Kyiv, Odessa during the war, and the same time we observe an increase in the hotel occupancy in Lviv.

At the same time, during 2022, the room occupancy rate ranged from 22 to 58%, which indicates a low level of attractiveness of hotels in central and south Ukraine, which indicates an insufficient response of new communication strategy.

How has the war affected the network and guests? Negative impact: lack of physical security due to the hostilities on the territory of Ukraine, which is on the list of countries not recommended for citizens of most countries. Lack of air travel, the departure of solvent Ukrainians from the country, unsafe location of hotels near government buildings become the logistical problems to ensure full operation. Positive effects: reduced competition - the list of competitors has been partially reduced due to the closure of hotels in Kyiv. Retention of staff, Ukraine is in the spotlight of the world community. Ukraine is a brand and visits from the press, international organizations and companies that were not present before. Having basements has become an advantage, as they serve as storage for guests, and proximity to the metro. What are the historical booking channels and customer segments? More than 65% are individual guests who book their accommodation directly at the reception, on the website or online resources. About 25% are representatives of embassies, government agencies and corporate companies, who mostly stay long-term and in large groups. The remaining 10% are loyal guests who stay regularly. Guests who have been staying since the beginning of the war: foreign journalists, whose number has increased significantly, international organizations, Ukrainians as individuals travelling through Ukraine and guests whose stays are funded by Ukrainian charities to support those affected by the war. Main sales channels: hotel website, hotel email, online booking channels, social media. Most online booking channels support Ukrainian businesses, so Airbnb had the opportunity to create a donate rate that anyone could use by making a charity booking to support the hotel industry. Another booking service, booking.com, cancelled the mandatory booking commission for Ukrainian hotels by the end of the year. As for the communication strategy of hotel services, absolutely no one has a magic methodology for communicating during such a period, but you definitely don't need to drop out of the information space. The concept of "communication" comes from the Latin word communication as a derivative of communicate - to make common, to connect, a way of communication, a form of communication. Therefore, communications are understood as the process of exchanging information between people using various signs, symbols, and communication methods. Communications are the subject of study in various sciences, including philosophy, sociology, psychology, political science, cultural studies, linguistics, economics, marketing, and others. Therefore, communication theory is a complex science that integrates knowledge about communication processes in various fields.

Marketing communications is one of the components of the 4Ps, which is an important tool for promoting goods and services. Marketing communications are of particular importance in the digital society, which is characterized by significant changes in almost all areas of human activity due to new opportunities provided by digital technologies, digital infrastructure, mobile and cloud technologies, Big Data, digital codification of information, significant growth in computing power, integration of information technologies with

communication systems, digital automation and robotics. All this makes information accessible to consumers, changes their behavior, accelerates the development of society, stimulates economic growth, improves public administration and business management in all areas of economic activity, and improves human life. External communications take place between an organization and the target audiences with which it has to deal. Target audiences include shareholders, trade unions, consumers, financial and credit institutions (banks, stock exchanges), suppliers, competitors, the media, NGOs, regional (municipal) authorities, government agencies and other governmental structures. Internal communications are communications that take place within an organization between individual employees or departments of the organization. Communication in social media, on the hotel website and in the media is important from the first days of the war and should be a mandatory, continuous process. Hotels need to broadcast their social, political and volunteer position. Make open reports on volunteer activities, broadcast that the hotel business is working. Wartime marketing and communications have their own peculiarities. You cannot pretend that nothing is happening and that there is no war. It used to be that some people could afford to say "we are out of politics", but now everything that happens in the country is politics. War is politics. In addition to the usual content, patriotic publications should be added, and such content can be segmented as follows:

- military and social;
- national brand positioning;
- information about volunteering;
- transferring funds for the Armed Forces;
- discounts for Ukrainians, etc.

Communication strategy in hospitality is a process aimed at: Supportive-victorious - inspirational content about victory, affirmations, quotes, memes on military topics. Adapt them to your niche, so you will be on the same page with your audience.

Relevant and useful - post a message about your company's work or suspension of work, publish a list of active sales offices, their schedule, and current contacts. Hotel can also add a list of bomb shelters near the establishment.

It is especially important to show that there are ordinary people behind every business, add staff photos, live stories and broadcasts to your profile. If possible, actively cooperate with international media and give interviews. This way, you increase the level of trust in the brand. In order not to lose the loyalty of your audience, you should work on any feedback or comment, even if it is unpleasant. Work with free channels. Whenever possible, hotel managers have to actively cooperate with international media and give interviews. This is how to increase the level of trust in the brand. In order not to lose the loyalty of the guests, hotel should work on any feedback or comment, even if it is unpleasant. Hotel need to work with free channels. The immediate target of such savings is communication channels. Hotel should focus on the free channels that will have developed in the previous work (social media, newsletters, website) and analyses whether hotel really need the paid channels that worked before the war (targeted, contextual, display advertising). Promotion of hotel services, in particular the cost of advertising impressions and ads, has fallen in price amid a decrease in supply on the market, so it is worth seizing the moment and allocating a budget for promotion. The main marketing messages have also changed somewhat, and now the

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main emphasis is on safe storage, round-the-clock security, room alarm systems, long-term accommodation at a reduced price, etc. Before posting anything, hotel manager needs to read the news. Before hotel manager clicks publish on a new post, he needs to check what's happening in Ukraine and around the world. It is clear why he should not post about entertainment if there was an explosion in a shopping centre half an hour ago. Delete what turned out to be inappropriate. Something happens all the time, unpredictably. If a tragedy occurs half an hour after the post, don't be afraid to delete, move, or apologize. Do not speculate on values. Do not use the names "Bayraktar" or "Peremoha" - do not parasitize on things that inspire Ukrainians. But at the same time, keep track of social demands: you need to understand what people want and give it to them.

Conclusions

It should be noted that the sales and communication strategy in today's realities must be quickly adaptable and adjust to changes and current market offers. Now is a great time to try and test new hypotheses of promotion, implement new approaches to doing business, and find other ways to increase revenue. Free tools are especially worth noting. Hotel managers have to monitor the situation in the country and the world to be as relevant as possible in communication strategy. The unpredictability and dynamics of demand in the situation of war in Ukraine prompts hotels to the need to comprehensively and systematically form a policy of sales and communication with guests in conditions of increased risk. Therefore, accordingly, there is a need to implement new strategies, since closed borders, lack of electricity supply and the danger of missile strikes lead to the need to change the paradigm of providing hotel services. Therefore, an important approach is formulating a strategy of reorientation to new target segments, forming a brand and identifying the hotel as a safe place for the guest. In the conditions of war, the introduction of new strategies for the distribution of hotel services is a dynamic and prevailing trend, which is manifested in the use of transformed sales channels, communication with stakeholders. Therefore, the means of improving the effectiveness of sales and communications in conditions of war are the creation of a positive image, including through volunteer activities and cooperation with charitable organizations. For the effective implementation of such strategies, there is a need for optimal balancing of economic interests and the social component. Therefore, it is possible to identify certain possible outcomes of sales and communications strategies in the context of war.

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TOWARDS SUSTAINABLE EVENT PLANNING: CURRENT STATE OF PLAY, BEST PRACTICES, AND CHALLENGES CREATING SUSTAINABLE EVENTS

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Abstract. *The topic of sustainability has gained widespread acceptance in many areas of society, with significant claims for the benefits of adopting the principles of sustainability in business and management. According to the United Nations, a sustainable event is one designed and organized to meet two main objectives: to minimize all potential negative impacts on the environment and leave a beneficial legacy for the host community and all involved. In the last few years, the concept of sustainable event planning has been incorporated also into the event industry, turning the attention of event management to issues of environment, social, and governance (ESG) as well as diversity, equity, and inclusion (DEI). The author will elaborate on the current state of sustainable event planning, outline some best practices in this sector, and deriving from the results of different studies make recommendations as to how the industry can and should make sustainability core to activities in event management.*

Keywords: *sustainable events, event management, sustainable event planning, events industry*

Introduction

Sustainable, ecological, green, eco-friendly, etc. are terms used in our everyday lives, practically on a daily basis. These terms are all synonyms of each other. Sustainability is often referred to as “sustainable development” (EC, 2022), which means meeting our own needs without compromising the ability of future generations to meet their own needs. It includes three pillars: economic, environmental, and social. Sustainability more in detail implies a link towards environmental impacts; in other words, the consumption of natural resources and the deliberation of pollution and energy use, the concern of economic themes of growth and durability, additionally connected to social inclusion and distribution of wealth (Musgrave and Raj, 2009). To achieve sustainability, the following contemporaneous achievements are necessary (Holmes et al., 2015):

- *Environmental sustainability* refers to the conservation and responsible management of natural resources (primarily non-renewable as well as vital for the maintenance of life, such as air, water, and land) where it is important to minimize pollution and protect the environment.
- *Economic sustainability* refers to creating prosperity at different levels of society, through the long-term sustainability of enterprises and other related economic activities.

- *Social sustainability* implies an equitable distribution of benefits, as well as respecting human rights and maintaining and strengthening local communities.






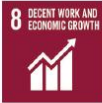







The term sustainability is used in the media, by consumers and companies, in politics, etc. Sustainability has gained a lot of interest among people and even earned the title of “mega-trend” of our time (Mittelstaedt et al., 2014). Since sustainability is present in all aspects of life, sustainability has also found its way to the event industry. Sustainability for events means acting towards preserving our natural environment, as well as promoting a healthy, inclusive society and in addition supporting a thriving economy. According to the United Nations (UNEP, 2012), a sustainable event is one designed and organized to meet two main objectives: to minimize all potential negative impacts on the environment and leave a beneficial legacy for the host community and all involved.

In 2015, world leaders agreed on Agenda 2030, which includes a set of 17 Sustainable Development Goals and 169 targets proposed by the United Nations (EC, 2022). Based on these 17 sustainable development goals also four principles of event sustainability were designed by Eventcouncil (2022):

- Event organizers and suppliers share responsibility for implementing and communicating sustainable practices to their stakeholders.
- Environmental practices include the conservation of resources (including water, energy, and natural resources), waste management, carbon emissions reduction and management, supply chain management and responsible purchasing, and biodiversity preservation.
- Social considerations include universal human rights, community impacts, labor practices, respect for culture, safety and security, and health and well-being.
- Economic practices are included through collaboration and partnerships, local support (including small and medium enterprises), stakeholder participation, equitable economic impact, transparency, and responsible governance.

As mentioned, the principles for sustainable events address all 17 of the United Nations Sustainable Development Goals, where the connection to each of the goals to the mentioned principles is shown in Figure 1 below.

Figure 1. The Principles for Sustainable Events addressing the United Nations Sustainable Development Goals.

| Environmental practice | Social practice | Economic practice |
|---|--|---|
|    |    |    |
|    |    |  |
| |  | |

Source: Adapted from Eventscouncil, 2022.

TOWARDS SUSTAINABLE EVENT PLANNING: CURRENT STATE OF PLAY, BEST PRACTICES, AND CHALLENGES CREATING SUSTAINABLE EVENTS

I. The development of sustainable event management theories

Events can model examples of a harmonious balance between human activity, resource use, and environmental impact, instead of being seen as hedonistic, resource-gulping, and garbage-producing happenings. Events have the power to leave a lasting and positive legacy and social outcomes, by inspiring supply chain and attendees to action (Jones, 2018).

The concepts of sustainability in the event sector are not new, but in recent years more and more attention has been paid to it, and research, analysis, and comparative studies are often carried out and presented to the public. As Musgrave and Raj (2009) state, sustainable event management has evolved over several years. It is not just a concept born out of government strategies or academic posturing. For example, in February 1994, Lillehammer, Norway presented the first so-called green games in the history of the Olympics. The Sustainable Exhibition Industry Project (SEXI) was set in 2002 in the UK to reduce waste as a first step towards sustainable development within the exhibitions sector of events. It has led to a commitment to action and the adoption of new standards and practices that drive waste out of the exhibition industry in the future (SEXI, 2002).

Applying the notions of sustainability in the event sector is a necessity for a responsible events profession operating within the 21st century (Musgrave and Raj, 2009). Hediger (2000) proposes that a component of sustainable principles is to induce cultural change within society, and thus within the events sector. In connection with this thought, Foley, McGillivray, and McPherson (2009) state that events must be used to engage and empower community groups to contribute to community building long after the event itself has moved on. Looking at the wider picture, practitioners and supporters of sustainable practice are aware of the need to pay attention to the triple bottom line of economy, society, and environment, but in practice, this is a difficult balancing act (Griffin 2009).

Smith-Christensen (2009) argues that the concept of sustainable events does not necessarily indicate a clear reference to the management of an event or its ability to contribute to sustainable development. That is why she proposed different definitions of this concept. Here are 2 most often applied (Smith-Christensen, 2009):

1. "Sustainable events are events managed as an autonomous cyclical process through the interaction between event management, host community, and event-goers, providing human resources, infrastructure, and funds."
2. "Sustainable events: events efficiently utilizing available resources (human resources, infrastructure, and funds), thereby being self-sustaining without, or, in the case of externalities, with a minimum of, public sector support."

Also addressing the topic of culture to sustainable development is relevant to the event industry, as Mair and Smith (2021) view, since events play a crucial role in cultural activity, not only encouraging cultural development, but visibilising cultural forms and enabling a wider range of people to participate. As such, cultural festivals and cultural events are regarded as ways of making places more inclusive.

1.1. Benefits of sustainable events

Managing sustainable events not only reduce their environmental impact but can also benefit the main actors involved. Concrete benefits are (EC, 2018; meetinghand, 2016):

1. *Environmental benefits and financial savings*

By saving energy, going paperless, and cutting down on unnecessary resources, you

can cut down on unnecessary expenditures - simply consuming less can eventually save money and reap environmental benefits. One example is online events, which help to reduce carbon emissions as it reduces the need for participants to travel and additionally save costs as you do not have to spend on venue rental. Applying sustainability principles will in the long term reduce costs (e.g. less printed material, less waste to be collected) and, most importantly, help reduce our collective carbon/climate footprint. On the other hand, increasing demand for more sustainable products can bring down prices and stimulate the market for more sustainability.

2. *Reputation and public image*

Organizing a sustainable event, it will help to raise awareness about this issue to the audience. You can encourage the target audience to make decisions that will be beneficial to the environment and society since conference participants and the public are becoming increasingly aware of environmental issues.

3. *Multiplier effect and triggering innovation*

Organizing sustainable events can inspire others to follow and further promote innovative green techniques and serving seasonal (and/or organic) food and drinks. With sustainable events, you drive the demand. Requesting more sustainable products will trigger as well as promote the development of innovative technologies and techniques, leading to more efficient use of resources and the improvement of the delegate experience.

4. *Social benefits*

An event can provide benefits to the region by creating jobs, encouraging local investment, involving regional Small and Medium Enterprises (SMEs), and can promote better working conditions and social inclusion as well as having a huge impact on tourism. It can also act as a catalyst for encouraging environmental and sustainable best practices across the region.

Festa, Metallo, and Cuomo (2009) state, that there is a close link between events, brand image, and reputation, in an interdependent vision of reciprocal influence. This means that the modality of event proceedings has a significant influence on the participating brand image and, on corporate reputation. But this also works the opposite way: corporate reputation and brand image can determine the value of the event and its sustainability.

1.2. The current state of play

In their paper already in 2009, Musgrave and Raj presented some sustainable event guides and principles, like DEFRA Sustainable Events Guide, SEXI: The Sustainable Exhibition Industry Project, Hannover Principles, UK Sport, The Sustainable Music Festival – A Strategic Guide. Based on an analysis of existing models and other sustainable guides, Musgrave and Raj presented a framework below that introduces the fundamentals of sustainability, coherence, and integration within the events industry. By their definition, a sustainable event policy must respect all ten elements of the framework as stated below:

1. Organizational structure (defining roles and procedures that foster positive attitude).
2. Design for duality (new technologies and search for innovative approaches).
3. Avoidance (plan to reduce damage to surrounding ecological systems, disruption to surrounding communities, and economic disparity).
4. Engagement (create local partnerships and alliances, increase participation and access

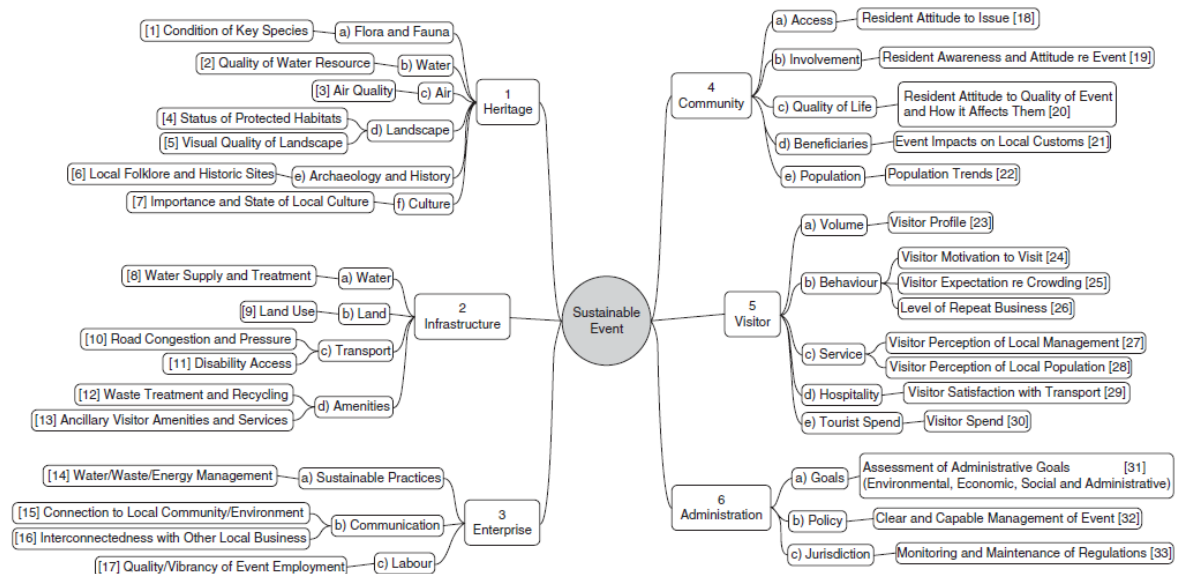
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for all).

5. No trace (elimination of waste, reduction of energy consumption).
6. Legacy, longevity, and transparency (measure, evaluate and inform all stakeholders of performance and future investment).
7. Incentivize (strategic alliances to offer savings for compliance towards sustainability principles from all stakeholders).
8. Strategic management (creating critical path and value chain analysis).
9. Education (educating participants, suppliers, employees, and the surrounding community about the purpose and principles of sustainability).
10. Location, location, location (deciding on a venue that provides accessibility, convenience, flexibility, and/or compliance with sustainability principles).

Based on the DIT-ACHIEV Model (which is an environmentally integrated destination management model) Griffin (2009) proposed that it could be employed in an event's context. Herby, the major issue confronting the selection of indicators is the poor availability of many data sets. However, the model with its content can be used as a guideline or framework, which event managers have to consider while managing sustainable events.

Figure 2. The DIT-ACHIEV Model is employed in an event context.



Source: Griffin (2009).

By Jones (2018) the key operational areas an event focuses on when identifying its sustainability issues are:

- Site and/or venue
- Local environmental impacts
- Supply chain
- Waste
- Energy
- Transport
- Water and sanitation

- Workforce conditions
- Engagement and communications

It is important to incorporate these issues in the event management phases (initiation, planning, execution, monitoring, and closure). Jones (2018) introduces a practical, step-by-step guide covering all the key aspects of how to identify, evaluate and manage event sustainability issues.

Also, different event management companies, leading event managers as well as event organizers give advice on their websites and blog posts about how successfully manage or more specifically how to plan a sustainable event. All the above-mentioned academics and scholars, as well as experts from the event industry, cover the topic by giving guidelines and explaining the concept, which results in the multiplier effect and inspires others to learn and follow this in the execution of innovative, sustainable events. Even the United Nations published *Sustainable events guide* with the aim of enabling others to adopt its good practices. The guide includes information on how to keep large-scale meetings as green as they can be and is a great tool for those responsible for the planning and conduct of large-scale conferences and other events (UNEP, 2012).

In 2018 the EU Commission published *Guidelines on organizing sustainable meetings and events at the Commission* to offer advice to EC staff on how to organize more sustainable meetings and events and seek to reduce the environmental impact. The purpose of the guidelines is to maximize the positive environmental impacts and minimize the potential negative ones while planning and delivering meetings and events (EC, 2018). The following steps and actions can be summarized according to the mentioned guidelines:

- *Step 0: Is a physical event necessary?*
It is important to reconsider if we need to hold a physical event or if can it be organized online.
- *Step 1: Is the venue sustainable enough?*
The decision of a venue should be considered factors like easy access by public transport, bike, or walking, as well as the availability of secure bike parking facilities; the energy efficiency of the building, and the waste collection/recycling systems.
- *Step 2: Is the printed and promotional material sustainable?*
We should consider using online promotional tools (e.g. online registration, online communication material, and resources, apps). Also, the printed promotional material should be limited (e.g. eco-friendly design & printing) and it is important to avoid or limit the distribution of promotional gadgets and gifts.
- *Step 3: Are the 3Rs applied? (Reduce, Recycle, and Reuse)*
This includes minimizing waste (e.g. reducing printed material and gadgets, packaging, single-use items, and food waste) as well as recycling waste via an appropriate system of waste sorting, collection, and recycling.
- *Step 4: Is the catering sustainable?*
While planning the catering it is important to choose seasonal (and/or organic) food and drinks, to offer a larger choice of plant-based food options, and most importantly prevent food waste. Also, avoiding single-use items is important (e.g.

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use reusable cutlery and crockery, drinking water in jugs).

- *Step 5: Are the accommodation and transport environmentally friendly?*

When planning the event and inviting participants, it is crucial to think also about the accommodation and recommend accommodation close to the venue and easily accessible by public transport, walking, and cycling. For the participants also the information on sustainable commuting should be provided (e.g. maps, timetables).

- *Step 6: Have social aspects been considered?*

While organizing and sustainable event the organizer should require companies to apply eco-friendly procedures when performing the contract or to employ staff in a socially conscious manner.

- *Step 7: Are you sharing environmental awareness?*

It is important to communicate the sustainability of your event (e.g. involve participants and stakeholders, follow-up communication should emphasize the positive, sustainable effects of your event).

Following these simple steps, or better said “the checklist”, can significantly contribute to improving the environmental performance and deliver significant benefits of an event. In the following chapter, we will present some examples of sustainable event management and events considering all or some of the above-mentioned steps toward managing a sustainable event.

II. Methodology

Throughout the first chapters of the article, we looked at the development of the sustainable event management theory, to the benefits of sustainable events and discussed the current state of sustainable event management and planning. These are all references prior to our research in the field and show how academics and event industry experts situated the methodology in established practices, mostly with case study research, record keeping, and qualitative observations. In this chapter, we discuss the qualitative research of our article, involving collecting non-numerical data, observations, and case study research.

Based on the beforementioned content analysis and thematic analysis of the field of sustainable event management, we analyzed several different events with the note "sustainable or green" which are described and presented online (enhancemententertainment., n.d., City of Melbourne, n.d., Event Academy, 2018, The Adriatic, 2022) and based on the expert experience as well as firsthand experience of the author, who is also working in the field of event management and attended as well as organized several sustainable events. Together we looked at 22 different events, which have an emphasis on sustainability, and used the methodology of sustainability in event management in practice. Based on that we decided to present the following 5 events (describing the preparation of samples for analysis):

1. We chose the example of the world-famous event EXPO 2020 Dubai, which was organized in a Middle Eastern country where there is not so much emphasis on sustainable development and sustainable event management to show that even where there is not much interest in this topic, one can achieve excellent, top-notch performance results. The event itself was promoted as sustainable and is one of the largest events in the world (both in terms of the number of visitors, the size of the venue, and the duration). Also, the author attended the event and has firsthand experience.

2. Presentation of excellent practices of sustainable event management in the case of an international sports event was chosen (example of Wimbledon) to demonstrate in a practical example, the possibility of applying sustainable principles not only in events at the European, or governmental level, supported by EU funds but also at a commercially, international, large sports event, such as Wimbledon is.
3. URBACT City Festival 2022 is an event that the author attended and was able to observe and research first-hand. At the same time, this event is organized under the auspices of the EU, which in its long-term goals emphasizes sustainable development and circular economy. As already presented, the EU Commission has its guidelines for organizing sustainable events and meetings and the mentioned event is so suitable for analyses, examining if the EU is “leading by example” in the field of sustainable event management.
4. If we hierarchically move from the European level to the national or the local level, specifically to the level of municipalities, it is important to show an example of sustainable event management also at that level. We can encourage the sustainable management and planning of events at the municipal level with examples of sustainable public procurement for purchasing materials for events (such as the example of the municipality The Haag).
5. The fact that even small business entities and institutions can work sustainable and manage and organize events in such a manner is demonstrated by the example of the event The Local Street Food Festival 2023 in Maribor, organized by the Regional Development Agency for Podravje - Maribor (RRA Podravje - Maribor), which organized a sustainable event at the local level, in a small town (Maribor, Slovenia) and was extremely successful doing it. Again, the author attended the event and has firsthand experience.

III. Results - Best practices of sustainable event management

In this chapter, we will look at some examples of events that integrate sustainability concepts and strategies to save the planet.

III.1. EXPO 2020 Dubai

Expo 2020's delivered one of the most sustainable World Expos in history align with national and international drivers. The key sustainable objectives of the event were: (1) leaving a legacy of sustainable infrastructure and future-oriented sustainable practices, (2) catalyzing sustainability efforts in Dubai and the UAE, (3) increasing public awareness by engaging society on sustainability principles and sustainable living, (4) developing sustainability solutions that are scalable, extending their benefits to the wider economy. Below are listed all the activities that the organizers run that lead to a great organized sustainable event (EXPO 2020 Dubai, 2020):

- Encourage the use of sustainable, low-carbon transport by providing alternative transport options, i.e. Dubai Metro and the Expo Rider bus service.
- Ensure efficient energy use and sustainable energy production across Expo 2020 by applying (1) passive design solutions and appropriate “active” industry-standard solutions and (2) innovative technological solutions and renewable energy systems.

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- With respect to the public realm people-centric, comfortable, and walkable spaces (with shading).
- Enhance the ecological value of the site, protecting and promoting biodiversity and local species.
- Reduce the demand for potable water systems by applying a water efficiency hierarchy, followed by the substitution of potable water with non-potable supplies (for example recycled water was used for 100% of non-potable applications (e.g. irrigation, cooling); 95% of condensate water recovered from buildings was collected and reused).
- Expo 2020 Dubai's Sustainable Materials Guidelines and the RISE Guidelines for Sustainable Operations provide guidance on the selection of appropriate materials.
- Minimize the amount of waste produced throughout all stages of design, construction, and operation; minimize the amount of waste that goes to landfill by incorporating a circular economy approach; reduce the use of single-use products and packaging; and plan for a sustainable legacy transition.
- Demonstrate global leadership, innovation, environmental stewardship, and social responsibility by achieving high levels of third-party green building and site certification.
- Communicate sustainability progress and achievements in a transparent and stakeholder-responsive way.
- Ensure carbon emissions at Expo 2020 are accurately measured and minimized, with unavoidable emissions managed in a responsible manner through appropriate offsetting programs.

EXPO is an excellent example of how versatile, detailed, and careful event management and the integration of sustainability concepts lead to an excellent implementation of a sustainable event, which is considered an example of good practice and a learning example for future similar events.

III.2. Wimbledon

Wimbledon is the oldest tennis tournament in the world and is widely regarded as the most prestigious. Wimbledon is a signatory to the UN Sport for Climate Action Framework and works alongside the UN, Sport, and our partners in achieving positive environmental impacts. They are ensuring positive impacts by pursuing the set goals (Wimbledon, 2023):

- *Reducing emissions from our operations to “net zero” by 2030.*

They are buying renewable electricity to power operations, measure, and report operational emissions, have embarked on a program of lighting upgrades installing high efficiency LED lights around the estate, use electric lawnmowers and horticulture equipment around the Grounds, have 20 electric iPace vehicles in the vehicle fleet during The Championships, ... these are just a few of the measures they made.
- *Being a resource-efficient organization by 2030.*

Following this goal, none of day-to-day business or Championships waste goes to landfill, recyclable materials are separated from general waste which generates

electricity for the National Grid, food waste is collected for anaerobic digestion producing high-quality fertilizer for agriculture and horticulture purposes, ... these are only a few of the activities done in that segment.

- *Contributing to a “net gain” in biodiversity by 2030.*
This is accomplished through different tasks, like prioritizing planting and horticulture across the site, showcasing “heritage” varieties in the food and drink offering, and donating plants to local community groups, ... etc.
- *Using influence to inspire wider action.*
Wimbledon is using its influence to reach beyond its boundaries through partnership, leadership, and collaboration with other major events and bodies in the sports industry and beyond.

Wimbledon is committed to playing its part in embracing the opportunities for regeneration and innovation, together with its partners, players, members, guests, and fans. This sports event is a great model for other sports events on how to successfully manage a sustainable sports event.

III.3. URBACT City Festival 2022

URBACT promotes integrated development to support cities implement horizontal and vertical policy integration. Inspired by European cities’ actions for climate and sustainable integrated urban development, the festival in 2022 was the first carbon-neutral URBACT program-level event. The mentioned event was in a live format from 14 to 16 June 2022 in Pantin / Greater Paris, under the label of the French presidency in the Council of the European Union. In practice, the City Festival’s carbon-neutral approach involved (URBACT, 2022):

- Decision on an eco-friendly venue powered by renewable energy (La Cité Fertile), with recycling bins and composting systems.
- Serving vegetarian and vegan dishes made from fresh, local, and seasonal produce, dishes from fresh and seasonal products. There was a great collaboration with catering companies with a sustainable approach as well as using non-disposable plates and encouraging all the participants to bring personal lunchboxes (if possible). Preventing significant food surplus and offering the possibility of composting meal leftovers. Also offering tap water throughout the event and reusable cups.
- Proposing a list of more eco-responsible accommodations in the area for the participants of the event.
- Working with suppliers who are committed to sustainability.
- Reusing existing furniture and materials for venue branding.
- Using primarily digital communication (mobile Festival website). There were no prints or goodies at the festival.
- Encouraging the participants to choose more sustainable means of travel to the festival, and during the festival use public transportation and rent bikes.
- A carbon simulator was prepared. The goal was to collect data from the different carbon emission categories to enable the calculation of the whole carbon footprint of the URBACT City Festival 2022 and to assess the impact and know which number of emissions needed to compensate for.

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The events sector contributes significantly to carbon emissions and has a responsibility to address that and contribute to the climate neutrality goals. All the different components of event preparation and delivery (from catering, accommodation, venue, and participant travel, to transport of goods and waste) account for hundreds or even thousands of tons of carbon emissions over a short period of time. That is why the URBACT City Festival 2022 is a great example of how a large event, with more than 450 participants, can make a great impact on reducing carbon emissions if well managed from the point of sustainable event management.

III.4. Purchasing materials for events in a sustainable way by the Municipality of Hague

The city of The Hague, Netherlands is working towards becoming a climate-neutral municipality by 2030. In compliance with its policies, the city imposed sustainability requirements in the purchase of materials for events and related services as part of the tenders the municipality is having for materials for events. In practice this means tenderers had to describe their role in achieving sustainability and innovation, covering at least the topics listed below (GPP Good Practice, 2022):

- The choice of materials and products when purchasing new materials.
- Emission-free transport.
- Handling of the materials at the end of the depreciation period.
- Materials used for disposable items.
- How the tenderer would ensure a sustainable and innovative approach to the implementation of the contract.

The most difficult part of the procurement process based on the city's experience was verifying bidders' claims about social and environmental criteria. They put emphasis on the hard evidence rather than on what tenderers would plan to do (requirement to show experience and to illustrate what they did in previous contracts). This is also a good example and a suitable basis for other cities when following The Hague's lead in imposing sustainability requirements in the purchase of materials for events.

III.5. The Local Street Food Festival 2023 in Maribor

The Local Street Food Festival 2023 in Maribor, Slovenia took place under the framework of the European Food Wave project, which aims to improve the quality of life for the world's population through circular economy projects and addresses the issue of economic sustainability. The festival connected local food producers and culinary lovers. Sustainability concepts were achieved through the following aspects (RRA Podravje Maribor, 2023):

- The food was prepared exclusively from locally grown food and products.
- A huge emphasis was on reducing waste: deposit for glasses and only glass materials for glasses were used, as well as reducing food waste due to real-time food preparation (according to the needs and the demand of the participants of the event).
- Eco-friendly materials were used: paper and wood utensils (spoons, forks, plates).
- Also, the reduce on-site water use was addressed: together with Maribor Water Supply Company water dispensers were put on the event location.

The event also had a social aspect: upon entering the Local Street Festival, visitors purchased coupons at a symbolic price, with which they then paid for prepared food and drinks.

This was donated to the Zveza prijateljev mladine (The Friends of Youth Association) for the education of children from socially disadvantaged families. This event shows that even small, local events can fulfill the sustainability in event management through environmental sustainability, economic sustainability, and social sustainability.

Discussion and Conclusion

Sustainability as a mega trend occurs also in the event industry. Organizations that hold or manage meetings, or different events (from conferences, business meetings, concerts, fairs, to any other large get-together) need to consider the impact these events have on the environment, society, and economy and have to be using an effective sustainable event management strategy. Sustainable events not only reduce their environmental impact but can also have some benefits, like (1) environmental benefits and financial savings, since saving energy, going paperless, and cutting down on unnecessary resources can cut down on unnecessary expenditures; (2) positive impact on reputation and public image, since conference participants and the public are becoming increasingly aware of environmental issues; (3) multiplier effect as well as triggering innovation, from promoting the development of innovative technologies and techniques, leading to more efficient use of resources and inspiring others to follow and further promote innovative green techniques and serving seasonal food and drinks; not to forget are also (4) social benefits, since sustainable event management promotes better working conditions and social inclusion; additionally (5) modality of event proceedings has a significant influence on the participating brand image and, on corporate reputation.

Sustainable concepts and issues should be incorporated in all event management phases (from initiation, planning, execution, monitoring, and closure). There are several step-by-step guides covering all the key aspects of how to identify, evaluate and manage event sustainability issues. It starts with the simple question "Is a physical event even necessary", since we need first to consider, whether should we need to hold a physical event or can it be organized online. While managing a sustainable event furthermore we need to think about the venue (from the energy efficiency of the building to accessibility by public transport, bike, or walking distance) and if the printed and promotional material is sustainable (including eco-friendly criteria) or if can we use online promotional tools. While managing a sustainable event all the time we have to ask ourselves are the 3R applied (reduce, recycle, reuse). Moreover, the catering has to be sustainable (from locally grown and plant-based food options to preventing food waste). Furthermore, the accommodation options need to be close to the venue and easily accessible by public transport, walking, or cycling. In managing sustainable events social aspects need to be considered (from eco-friendly procedures applied by employed companies and employing staff in a socially-conscious manner) as well as sharing and rising environmental awareness.

With the paper we want to advance the understanding of sustainable event management, the way events research has advanced with this specific topic. It is important to think about how events contribute to sustainable development, rather than thinking about how to make individual events less damaging to the environment. We presented also examples of sustainable events (some good practices: from very big events like the Expo to small local events). However, there is some empirical and data research missing in this field as well as the challenge of measuring the sustainability of an event, which is a good starting point for further research.

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PRINCIPLES OF WATER INFRASTRUCTURE MANAGEMENT IN ENSURING SUSTAINABLE WATER USE IN UKRAINE

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***Abstract.** The military actions in Ukraine significantly aggravate the problems of sustainable water resources management. Even in the pre-war period, the main funds of the drinking water supply and sanitation systems were characterized by an unsatisfactory technical condition, an extremely high percentage of wear and tear and required large capital investments. During the wartime, the water management infrastructure of Ukraine became the object of massive attacks by the Russian Federation, which led to catastrophic consequences, such as the destruction of critical infrastructure facilities, lack of population access to drinking water supply, contamination of drinking water sources, complications of the sanitary and epidemiological situation, which poses a significant threat to the health of the nation.*

The purpose of the article is to determine the current state, trends in the restoration and development of the water management infrastructure in Ukraine and the formation of the basic principles of its management to ensure sustainable water use in Ukraine. The methodological tools of the study were such approaches and methods as a systematic approach, methods of system-structural analysis and synthesis, comparison and generalization, economic and statistical methods.

***Keywords:** Ukraine's water infrastructure, impact of the full-scale Russian invasion, sustainable water use principles, blue economy, circular economy, social responsibility*

INTRODUCTION

Water industry is an important component of any modern economy. Water facilities are crucial for the socio-economic development of Ukraine, as they provide centralized water supply and sanitation for the population, industrial and agricultural enterprises, as well as protect from negative consequences associated with water use. However, unfortunately, they can be subject to wear and tear and malfunction, which can lead to serious water quality problems, which in turn may affect public health and the state of the environment. This problem arises for a number of reasons, in particular, inadequate funding, inefficient management, lack of due attention to the protection and conservation of water resources. Modern management tools, such as smart water management, aimed at water infrastructure operation based on sustainability and self-sufficiency. It can be carried out through the use of innovative technologies, such as information and control technologies and monitoring. Thus, water management contributes to leakage reduction, water quality

assurance, improved customer engagement and operational optimization (Ramos et al., 2020).

The state of the water infrastructure has a significant impact on sustainable water use in the country. The European Union (EU) has implemented a series of directives aimed at ensuring the effective management of water resources and the preservation of water quality. These directives set out specific environmental requirements that water management facilities must adhere to in order to promote the sustainable use and protection of water bodies across EU member states. In the article (Bolognesi, 2014) it is examined main laws and regulations concerning water standards enacted at European level.

One of the main challenges for water infrastructure has always been the great quantity of electricity needed to extract, treat, convey and reuse water thus it becomes increasingly important to integrate renewable energy sources into water infrastructure systems. By harnessing renewable energy, it can be achieved a more sustainable and resilient water sector while mitigating the impacts of climate change. Bieber et al. (2018), using a scenario based approach, propose innovative water supply and energy deployment policies, which address the provision of clean energy for population and demonstrate the potential effects of climate change.

As long as water infrastructure systems in the developed countries evolved as products of the industrial revolution, design principles of that time were different. However, the existing water infrastructure design is incompatible with the present environmental, economic, and social principles of sustainability (Apul, 2010). Thus, it is necessary to implement modern principles of water infrastructure management, which will contribute to ensuring sustainable and efficient water resources use, meeting the population needs and preserving the environment.

I. Methodology

The methodology of this study was based on a combination of statistical analysis of the results of water infrastructure management in Ukraine in the pre-war 2020-2021 years, statistical and expert data on the impact of the of the Russian Federation on critical water infrastructure facilities in Ukraine, with an analytical study of modern principles of sustainable development that will affect the main directions of the post-war restoration of Ukrainian water infrastructure.

The study was conducted from November 2022 to April 2023 in the following stages:

1) collection of statistical information on the main indicators of the state of the centralized water supply and sanitation systems in the regions of Ukraine in 2020-2021;

2) analysis of recent reports and studies on the impact of the Russian full-scale military aggression in Ukraine in terms of determining the damage caused to Ukraine's water resources and water infrastructure;

3) determination of the main principles of sustainable development in the context of the conceptual foundations of the circular economy, social responsibility, blue growth and the possible vectors of its application for the post-war restoration of Ukraine's water infrastructure.

The study was based on such information resources as the statistical-analytical report of the World Bank, statistical data report of UNICEF, statistical data of the Ministry for Communities and Territories Development of Ukraine, publications of Ukrainian and foreign

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scientists on the research topic according to the list of references (22). The following approaches and methods served as the methodological tools of the study: a systematic approach, methods of system-structural analysis and synthesis, comparison and generalization of a systematic search, economic-statistical methods.

1.1. The analysis of the pre-war problems in the field of water management and the current state of the water infrastructure in Ukraine

The water infrastructure of Ukraine consists of a large number of structures and objects, such as water intake facilities, water pressure towers, water supply and sanitation networks, treatment and hydrotechnical facilities, reservoirs, etc. Before the war, the main funds of water industry of Ukraine were mostly characterized by an unsatisfactory technical condition, since they were built in the 60s of the last century, they needed serious capital repair and in some cases complete reconstruction.

According to the Ministry for Communities and Territories Development of Ukraine (MinRegion, 2021), in 2020 the total length of water supply networks was 121921 km, including dilapidated and emergency networks – 46602 (38%); during the year, 991 km (2,1%) of the need were renewed. The total length of centralized sanitation networks was 46602 km, including dilapidated and emergency – 16618 km (35,6%); during the year, 186 km (1,1%) of the need were renewed. As can be seen from fig. 1 the rate of renewal of the water supply and sewerage network in Ukraine is quite low and does not meet the needs of the population and the economy.

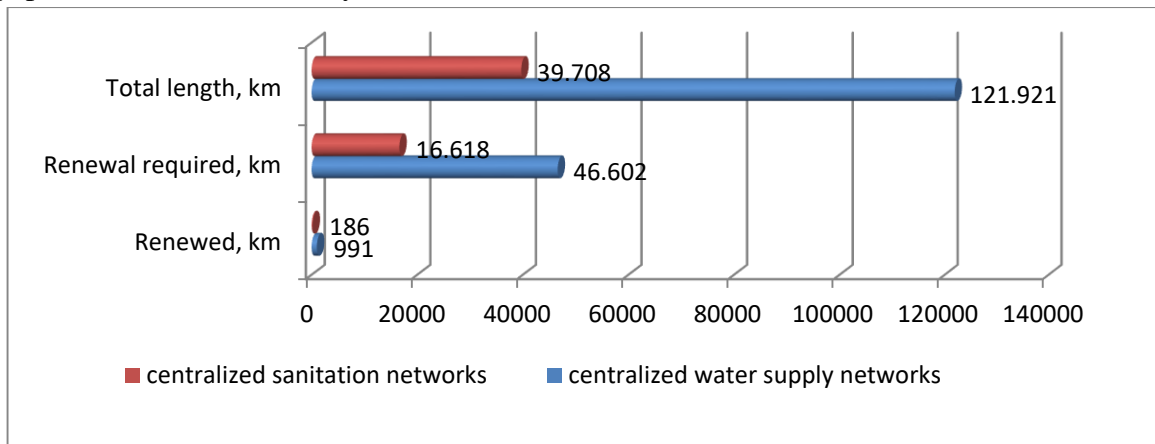


Fig. 1. The length and condition of centralized water supply and sanitation networks in Ukraine in 2020.

Source: compiled by the author based on (Ministry for Communities and Territories Development of Ukraine [MinRegion], 2021)

Another indicator of the state of the water infrastructure in Ukraine is the accident rate of centralized water supply and sanitation networks, which can be caused by various factors, in particular, such as aging networks, insufficient funding, negligence in operation, etc.

Accidents on water supply and sanitation networks can lead to interruptions in the supply of drinking water, its pollution, flooding of territories, environmental pollution and pose a threat to human health.

So, in 2020, the average accident rate of the centralized water supply network in the regions of Ukraine amounted to 1,83 accidents per 1 km of the network, in particular, the largest number of accidents was in the Kiev region – 6,38 accidents and in Odessa – 4,92 accidents per 1 km of centralized water supply network; the lowest – in the Cherkassy region – 0,04. The average accident rate of the centralized sanitation network in the regions of Ukraine amounted to 1,54 accidents per 1 km of the network, the largest number of accidents was in the Kyiv region – 6,0 accidents and Kharkiv – 4,3 accidents per 1 km of the centralized sanitation network; the lowest – in the Kirovohrad region – 0,09 (Fig. 2).

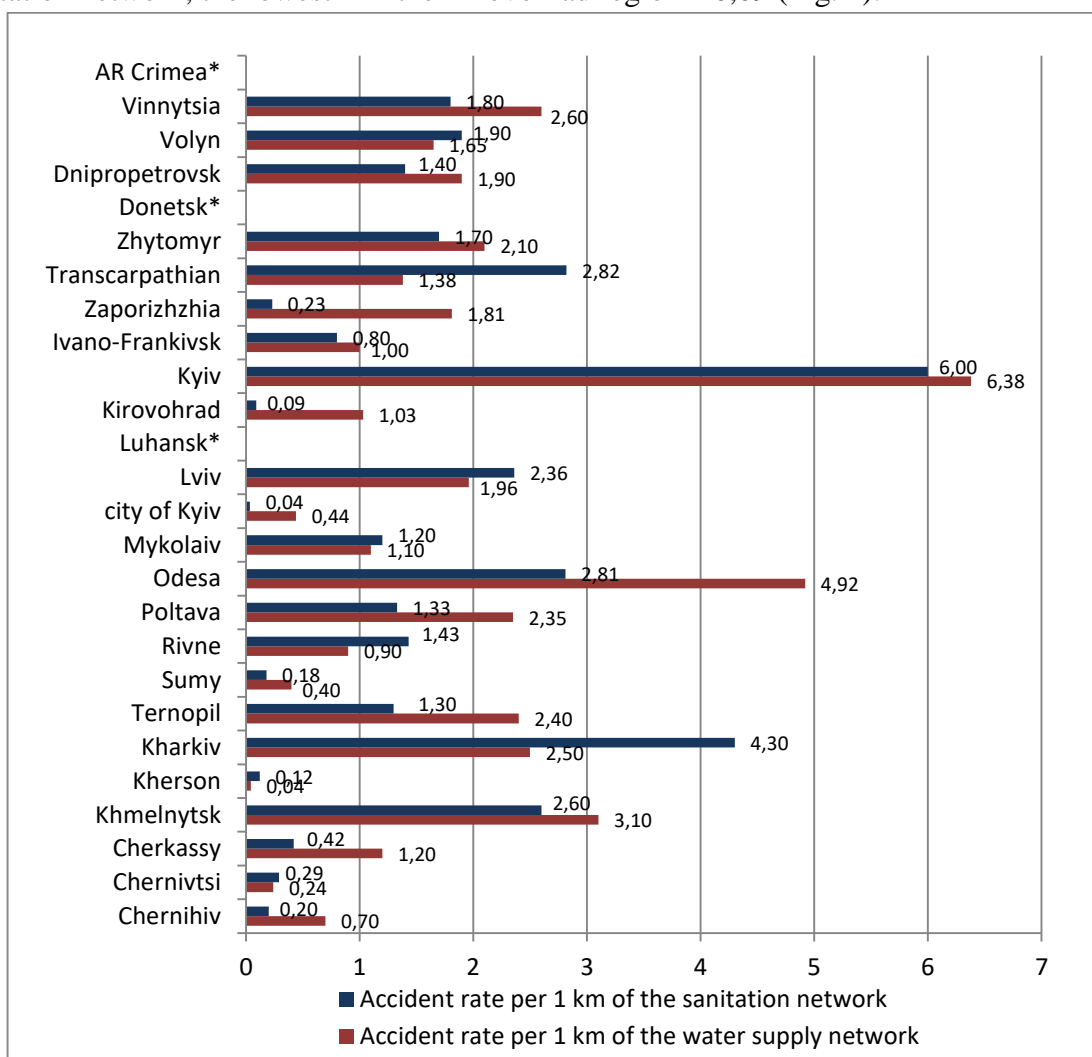


Fig. 2. Accident rate of centralized water supply and sanitation networks in Ukraine in 2020

* the statistical information was not available in the temporarily occupied territories

Source: developed by the author based on data (MinRegion, 2021)

In rural areas of Ukraine, in particular in the east and west of the country, the water infrastructure was less developed and had a low level of technical equipment. According to (MinRegion, 2022), in 2020-2021, more than 75% of rural areas in Ukraine did not have access to centralized water supply and sanitation systems (Table 1).

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Table.1. Provision of settlements in Ukraine with centralized water supply and sanitation systems in 2020-2021

| Year | Cities | | | Urban type settlements | | | Rural settlements | | |
|---------------------------------|--------|---------------|-------|------------------------|---------------|-------|-------------------|---------------|-------|
| | Total | Provided with | % | Total | Provided with | % | Total | Provided with | % |
| centralized water supply | | | | | | | | | |
| 2020 | 314 | 310 | 98,7% | 473 | 432 | 91,3% | 22 204 | 5 382 | 24,2% |
| 2021 | 314 | 310 | 98,7% | 473 | 427 | 90,3% | 22 204 | 5 215 | 23,5% |
| Centralized sanitation | | | | | | | | | |
| 2020 | 314 | 301 | 95,8% | 473 | 319 | 67,4% | 22 204 | 323 | 1,45% |
| 2021 | 314 | 301 | 95,8% | 473 | 319 | 67,4% | 22 204 | 330 | 1,48% |

Source: grouped by the author based on data (MinRegion, 2022)

According to the tasks specified in the National Report “Sustainable Development Goals: Ukraine”(2017), the share of the rural population with access to centralized water supply should increase from 17,2% in 2015 to 80% in 2030; the share of the rural population with access to improved sanitation should increase from 1,9% in 2015 to 80% in 2030, which is quite an ambitious target even in peacetime.

Thus, in 2021, only 23,5% of rural settlements in Ukraine had access to centralized water supply and 1,45% to centralized sanitation. These circumstances can lead to the use of low-quality water from open sources such as rivers and ponds, which can subsequently cause the spread of diseases and threaten the health of the local population. In addition, the lack of sanitation systems can lead to environmental pollution, in particular water resources and soil.

To solve the problems of providing rural settlements of Ukraine with centralized water supply and sanitation systems, it is necessary to apply an integrated approach. In particular, according to professors M. Khvesik and V. Golyan (2014), the priority areas for the modernization of the water infrastructure in rural areas should be: increasing the volume of work on the construction of new and reconstruction of existing centralized water supply and sanitation systems in rural settlements; technical and technological restructuring of inter-farm and intra-farm networks of hydraulic structures; construction of those water infrastructure facilities that will contribute to the implementation of the European Union directives. In a study by N. Kovshun (2015) it is noted that a perspective economic mechanism for financing the water infrastructure of Ukraine is a public-private partnership, when the state, to solve a specific problem for a water facility, involves private initiatives.

Solving the problematic issues of the water infrastructure functioning can improve the living conditions of the rural population and provide a more sustainable future for rural development in Ukraine.

1.2. The impact of the full-scale military aggression of the Russian Federation on critical water infrastructure facilities in Ukraine

The full-scale military aggression of the Russian Federation has a serious impact on water resources and water security both at the national and global levels. Although, according to the Geneva Conventions (1949), countries involved in armed conflicts are obliged to observe and ensure compliance with international humanitarian law under any circumstances. However, there is a global trend towards increasing the use of water resources and infrastructure as a target or means of warfare in armed conflicts. The full-scale Russian invasion and intense hostilities in Ukraine led to the destruction of critical infrastructure, including water industry facilities.

In the study (Shumilova et al., 2023), the authors examined how military operations affected water resources and water management infrastructure during the first three months of the war. A total of 64 reported impacts on the water sector were investigated, in particular, such as interruption of water supply; disruption of sanitation networks and treatment facilities; pollution of surface waters due to the release of chemicals as a result of shelling and bacteriological contamination due to mass death of poultry; damage to dams; mine flooding; disruption of a hydroelectric power plant.

The article (Gopchak et al., 2022) provides methodological recommendations for calculating the damage from the destruction to fixed assets of the water sector for industrial and non-industrial purposes, and calculating the costs of restoring the infrastructure. In particular, it was noted that the volume of damage to active war zones will increase linearly over time at a rate of 0.274% per day. If the region is under occupation, the growth rate of damage is 0.137% per day.

In the World Bank report (2022), it is noted that the most affected water infrastructure facilities were water supply and sanitation networks, water treatment facilities, drinking water treatment plants. Table 2 shows the water infrastructure facilities, their damage and estimated needs for reconstruction. The information provided is not exhaustive given the difficulty of obtaining data from temporarily non-government controlled areas.

Table.2. Water infrastructure damage inventory and estimated recovery and reconstruction needs as of June 2022

| Object type | Type of damage | | | Reconstruction needs, USD million | | |
|---|-------------------|----------------------|-------|-----------------------------------|----------------------|-------|
| | Partially damaged | Completely destroyed | Total | Urgent / short-term | Medium- to long-term | Total |
| Water treatment facilities (units) | 8 | 2 | 10 | 39,0 | 156,0 | 195,0 |
| Wastewater treatment facilities (units) | 10 | 4 | 14 | 72,0 | 288,0 | 360,0 |
| Water pumping stations (units) | 20 | 18 | 38 | 13,7 | 54,6 | 68,3 |
| Sewage pumping stations (units) | 32 | 19 | 41 | 28,6 | 114,5 | 143,1 |

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| | | | | | | |
|----------------------------|----|---------|---------|-------|--------|--------|
| Water supply networks (km) | 0 | 816,314 | 816,314 | 122,4 | 489,8 | 612,2 |
| Sanitation networks (km) | 0 | 241,665 | 241,665 | 108,7 | 435,0 | 543,7 |
| Wells (units) | 11 | 13 | 24 | 0,6 | 2,4 | 3,0 |
| Laboratories (units) | 3 | 2 | 5 | 0,3 | 1,2 | 1,4 |
| Clean water tanks (units) | 4 | 12 | 16 | 4,1 | 16,3 | 20,4 |
| Water towers (units) | 8 | 24 | 32 | 1,6 | 6,5 | 8,2 |
| Total, USD million | | | | 391,0 | 1564,3 | 1955,3 |

Source: compiled by the author based on data (World Bank, 2022)

Water infrastructure recovery and reconstruction needs are based on damage and losses as of June 2022. At that time, they were estimated at about USD 1,955 million. Partially damaged and destroyed infrastructure requires restoration on a priority basis. The necessary investments are divided into urgent - short-term (USD 391,0 million) and medium-long-term (USD 1564,3 million). The needs assessment considers a “build back better” approach to recovering damaged/destroyed water infrastructure objects.

The Bulletin of the Observatory of Conflicts and the Environment (2022) analyzes the impact of the war on the state of the water supply sector and on the water resources of Ukraine, in particular, it is studied the most devastating incidents for the period February-August 2022, such as the explosion of the dam of the Kakhovskaya hydroelectric power station, damage to the Mykolaiv pipeline, numerous accidents with damage to the pumping stations of the water supply system in the city of Popasna and the Seversky Donets canal, the destruction of the Irpen dam, which led to flooding.

However, the greatest destruction Ukraine’s critical infrastructure has experienced since October 2022, when the Russian Federation launched massive and methodical missile strikes throughout Ukraine approximately every 10 days, in particular, water supply networks, sewerage systems and other water infrastructure facilities were damaged. In general, for the period October 2022 - March 2023, the Russian Federation launched 908 missiles and 95 kamikaze drones in order to destroy critical infrastructure. As a result, according to UNICEF (2022), as of December 2022, 16 million Ukrainians had limited access to water, sanitation and hygiene. The situation is especially critical in the east and south of Ukraine, where people are forced to fight for access to water supply and sanitation services in order to meet their vital needs.

The energy crisis in December 2022 – February 2023 further aggravated the problems: power outages affected the condition of water pumping stations and led to interruptions in water supply throughout Ukraine. Internally displaced persons in collective centers and host communities faced significant restrictions in access to water, hygiene and sanitation.

Restoration of water infrastructure facilities during the active phase of hostilities is an extremely difficult, but also the most important task for ensuring the safety and health of the

population under martial law. The main obstacles to the timely resumption of the water infrastructure facilities functioning are:

- location of damaged objects in the occupied territory;
- location of damaged objects in the zone of active hostilities and shelling.

However, in other territories of Ukraine, updating water infrastructure facilities to an adequate technical condition is not a priority task for local authorities in wartime.

II. Results – Principles of post-war reconstruction and management of Ukrainian water infrastructure on the basis of sustainable development

The destruction of Ukraine's water infrastructure leads to serious consequences for public health, in particular, to a decrease in the quality of drinking water and an increase in the risk of epidemics and other diseases that are transmitted through water. In addition, as a result of missile attacks, mining, especially in the zone of active hostilities, there is a lot of toxic explosive material that can pollute water sources and lead to the destruction of aquatic and semi-aquatic ecosystems.

In the post-war period, Ukraine will face many challenges in the field of water management. Therefore, today, when forming a strategy for the post-war development of Ukraine, it is necessary to take into account modern principles of water infrastructure management, which should be based on the main provisions of the circular economy, social responsibility, blue growth (Fig. 3) and promote sustainable water use and conservation of water resources for future generations.

Management of water infrastructure according to the principles of the circular economy implies an increase in the efficiency of the use of water resources and a reduction in waste from the water sector. The 10R principles, developed by J. Cramer (2017), are the basis for the introduction of a circular economy and can be applied in the water management sector to ensure the sustainable water use.

Refuse and reduce: reducing water consumption by eliminating inefficient water use, applying water-saving technologies and changing consumer behavior.

Redesign, Repair, Refurbish and Remanufacture – these are important circular economy principles that can be applied to water supply and sanitation management to promote the sustainable and efficient use of water resources. For example, designing water systems that collect and use rainwater while reducing the amount of water needed from other sources; repairing leaking pipes and refurbishing wastewater treatment plants with more advanced treatment technologies; reconstruction of the existing water management infrastructure to extend its service life.

Reuse, Re-purpose, Recycle, Recover – include recycle of treated wastewater for non-potable needs such as irrigation, industrial processes, domestic needs, etc.; reuse of storm water for non-potable purposes such as industrial cooling or landscaping; recover of valuable resources from wastewater for use in agriculture or bioenergy production. The application of wastewater reclaiming and recycling practices is discussed in more details by the author in the preliminary study (Khumarova & Mahats, 2022).

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Fig. 3. Interrelation of circular economy, blue growth and social responsibility principles in ensuring sustainable water use

Source: developed by the author

Having considered the main 10R principles of the circular economy, it is proposed to pay attention to such important principles of water infrastructure management as:

Regenerate – means restoring natural ecosystems and water resources to a healthy and productive state. Regenerative practices can help reduce pollution, improve water quality, and promote biodiversity conservation.

Renew energy. The use of renewable energy sources can be a valuable tool for managing water infrastructure. Using renewable energy sources to power water infrastructure can reduce energy consumption, reduce carbon emissions and promote sustainable development. Thus, the use of renewable energy sources can include solar-powered water treatment, the use of wind energy to power pumps for transporting water through pipelines, the production of biogas from the treatment of wastewater sludge, etc.

By applying these principles to the water sector, businesses and societies can improve water use efficiency, reduce waste, and promote sustainable water infrastructure management practices.

Blue growth as part of the sustainable development concept involves using the potential of marine and coastal regions for balanced development in economic, social and environmental aspects. This approach recognizes the importance of water as a critical resource for economic development and takes into account the needs of rational use to ensure the availability of water for future generations. Based on the main provisions of the book by G. Pauli (2010), it is identified the following principles and tools for blue growth in water

management (Table 3). The application of blue growth principles will contribute to the sustainable use of water resources, the conservation and restoration of aquatic ecosystems and the reduction of the human activity impact on the environment.

Table 3. Blue growth principles and instruments in water infrastructure management

| Principle | Meaning | Implementation Tool |
|--------------------------------|---|---|
| <i>Integration</i> | ensuring interconnection between various sectors, such as water supply, sanitation, environmental protection, energy and transport, in order to achieve a common goal – the efficient and sustainable use of water resources. | <ul style="list-style-type: none"> • integrated water management plan; • integrated environmental permit. |
| <i>Nature-based solutions</i> | taking into account natural processes and environmental factors in the planning and construction of water management infrastructure, in particular, in the construction of reservoirs, sewage networks, dams, etc. | <ul style="list-style-type: none"> • environmental impact assessment; • the concept of "green infrastructure"; • ecosystem approach. |
| <i>Science-based decisions</i> | use of scientific research and expert assessments for decision-making regarding the use of water resources and the management of water infrastructure. | <ul style="list-style-type: none"> • data analysis and forecasting; • monitoring and control; • modeling; • expert systems. |
| <i>Resilience</i> | the ability of water infrastructure management to maintain its performance and adapt to changes in the ecological, economic and social environment. | <ul style="list-style-type: none"> • risk and vulnerability assessment of water management systems; • development a contingency plan; • development of strategies for rapid reaction to changes. |
| <i>Innovation</i> | application of the latest technologies and innovative solutions to improve the efficiency and sustainability of the water infrastructure. | <ul style="list-style-type: none"> • digital technologies; • renewable energy sources; • modern construction materials and technologies. |
| <i>Cooperation</i> | provides for interconnection between various parties, including governmental and non-governmental organizations, public organizations, scientists, business and society to achieve the sustainable use of water resources. | <ul style="list-style-type: none"> • public consultations; • involvement of stakeholders in the planning and decision-making process; • creation of platforms for information exchange and actions coordination. |

Source: developed by the author

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Water infrastructure management based on the provisions of social responsibility implies an understanding of the water industry enterprises impact on society and the natural environment and a responsible attitude towards the consequences of this impact. This means that water management must respond to the needs of the public, ensure that services are accessible to all groups of the population, contribute to positive changes in society and prioritize environmental practices. Sharing the vision of O. Grishnova (2011) on understanding the essence of social responsibility, it is formed some of the most important principles, including:

Inclusiveness: ensuring equity in access to water resources for everyone, regardless of social status and other characteristics. This can be achieved by introducing programs and projects that help improve access to water and sanitation for all people, especially those who are in a vulnerable state.

Responsibility: management of the water infrastructure in accordance with the laws, rules and regulations relating to the water sector, and responsibility for the consequences of the use of water resources and water infrastructure.

Safety: provides for high-quality drinking water supply to the population, the proper technical condition of the infrastructure, as well as safe working conditions for employees of water industry organizations.

Ethics: upholding high standards of virtue and morality in the decision-making process of water infrastructure management. This means that decision-making should be based on objective facts and analysis, and not on personal interests or corruption.

Transparency: providing access to information on the state of water resources and water infrastructure, the decision-making process and the activities of management bodies through open data and reports.

In previous studies of the author (Khumarova & Mahats, 2023), it was substantiated that the organization of water management on the basis of social responsibility will help ensure the harmonious development of the economy and the social sphere and will improve the quality of life of the population.

CONCLUSIONS

After the end of the war, the restoration and development of water management infrastructure is one of the most important tasks for the economic recovery and the socio-economic development of territories that have been destroyed as a result of military operations. After analyzing the general pre-war problems in the field of water management and the current state of the water infrastructure in Ukraine, it was determined that in order to ensure sustainable water use in Ukraine, the management of water infrastructure should be based on the basic principles of the circular economy, blue growth and social responsibility. At the same time, achieving sustainable water use in Ukraine requires cooperation and coordination of actions of all stakeholders, including state authorities, public organizations, scientific and research institutions, the private sector and society (Carius et al., 2004).

Until the end of hostilities and the complete de-occupation of the entire territory of Ukraine, it is very difficult to assess the scale of the water infrastructure destruction and make suggestions on further trends in their restoration. However, based on today's global

initiatives, the basic principles of sustainable development and the “build back better”, it is possible to propose the main vectors for the subsequent post-war recovery and development of Ukraine's water infrastructure (Kitowski et al., 2023):

- restoration and modernization of water management facilities, considering the environmental requirements of the European Union directives;
- expansion of the centralized water supply and sanitation network, especially in rural areas;
- reducing the share of traditional energy sources in the supply of water infrastructure and increasing the use of renewable energy sources;
- equipping water infrastructure facilities with innovative technologies and introducing "smart" water management systems;
- designing new water supply and sanitation systems, considering the introduction of water recycling practices.

Thus, introducing these main vectors of water infrastructure development should ensure the efficient use of water resources, social justice, environmental conservation and sustainable economic growth.

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ECONOMIC RECOVERY MECHANISMS IN WARTIME

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Abstract. Restoring national competitiveness requires a lot of time, effort, and financial investment, and, in particular, involves a structural sectoral transformation, reorientation, and rethinking of target orientations and levers of the economy. Analysis and systematization of the experience gained by other countries that were in a situation similar to the unjustified Russian invasion of Ukraine on February 24, 2022, working out ways to solve problems will become a road map for recovery after the victory and in the process of rebuilding the country. The purpose of the article is to determine the key economic recovery mechanisms in wartime on the study of similar recovery experience in world system. As a result of the study, the main drivers and levers of economic recovery are determined, which will help to restore the national economy step by step, and alternative methods are proposed, which are based on a combination of the experience of different countries.

Keywords: *economic recovery, main areas of development, post-war recovery experience, economic potential, economic policy.*

Today, the concept of war is more multifaceted than in the past. Nowadays, war is not only about an armed conflict between states or a bloc of states, which is limited to crisis processes in the socio-economic systems of the warring parties. In the context of the rapid acceleration of globalization at the end of the twentieth century and the creation of an extremely interdependent system of international relations, an open war between developed economies causes the emergence of a "perfect storm" for the entire world economic system. The situation is further complicated by the fact that Russia has launched its full-scale invasion against Ukraine when the global economy had not yet recovered from the effects of the coronavirus crisis, especially in the healthcare sector, and the emergence of geopolitical tensions, economic nationalism and populism. This ultimately leads to the realization that global society needs to immediately and promptly find ways to mitigate and overcome the growing crisis. But the problem is, the full consequences of war are best understood only by those societies that experience it themselves. In view of the above, the relevance of this study is confirmed by the importance of highlighting the economic and social consequences of Russia's full-scale invasion of Ukraine.

The theoretical and methodological basis for this study is the scientific work devoted to determining the peculiarities of the restoration of states that have had a similar experience of invasion of their territory by other countries. Thus, the work of political scientists and scholars who paid attention to the nature of military conflicts and the search for political

solutions to them (Von Clausewitz, 2005; Yamazawa, 1990); scholars who studied the ways and means of rebuilding countries after armed conflicts and full-out war, studied their background, assessed their consequences and the available resources for reconstruction (see, for example, (Barakat & Kapisazovic, 2003; Tzifakis & Tsardanidis, 2006; Lemay-Hébert & Murshed, 2016). There is also potential for development in analyzing conceptual frameworks and practical cases to understand possible tools for post-war reconstruction (Aboushala & Haj Ismail, 2022) or technological cooperation in the defense industry as a factor of sustainable development (Holtström, 2022; Callado-Muñoz et al., 2022; Duginets & Nizheiko, 2022).

However, while paying tribute to the existing scientific developments of domestic and foreign researchers on this issue, it should be noted that the scientific community has not yet developed a holistic vision of the recovery process and has not assessed its complexity and impact on various sectors of the economy of the whole country. Also, the existing modern scientific and practical developments studied by Ukrainian scientists since the beginning of the invasion reflect some of the issues in recovery and have not yet been systematically and practically applied (Mazaraki & Melnyk, 2022; Irtysheva et al., 2022; Zveryakov, 2022; Humeniuk, 2022). Therefore, the existing global experience of post-war reconstruction requires further in-depth study and systematization for further adaptation in Ukraine, which can be successfully used in the post-war recovery of the national economy.

The purpose of the article is to study the theoretical and practical developments available in the world science on the formation of strategies for economic recovery of states in the context of war in order to determine the possibility of adapting their experience in the context of Ukraine's economic recovery.

To achieve the research goal, the author used a set of complementary methods of scientific knowledge of economic processes and phenomena: historical, logical and systemic-structural methods, comparative and statistical analysis; information, process and institutional methods. The information base of the study includes statistical and analytical materials of the State Statistics Service of Ukraine, the World Trade Organization, the Organization for Economic Cooperation and Development, the World Bank Group, the International Monetary Fund, and the Official Statistics Office of the European Union; information and analytical collections, bulletins and reviews; factual information of public authorities, domestic and foreign scientific works, results of own research, analytical and information materials from open sources.

In addition to the two world wars, more than 350 regional wars and military conflicts took place in the twentieth century. While only 36 regional wars or military conflicts were recorded before the First World War, there were 80 between the world wars, and more than 250 after the Second World War: since 1945, more than 12 million military personnel from about 100 countries have participated in military operations, and the number of deaths has exceeded 35 million (10 million in the First World War and 54 million in the Second World War) (Today's armed conflicts, n.d.). It should be noted that it was after the Second World War that the Geneva Conventions of 1949 began to use the terms "international armed conflict" (Article 2) and "non-international armed conflict" (Article 3) along with the term "war"

(OHCHR, n.d.). And since the 1950s, the term "armed conflict" has been used more often than the term "war". This substitution is mainly explained by political and ideological considerations, attempts to shift the emphasis in these concepts and the prohibition of war as a means of resolving international disputes.

Armed conflicts have an impact not only on the national economies of the countries involved, but also on the global economy as a whole. For example, in early 2022, the World Bank published its forecasts for global economic growth, predicting 4.1% growth globally and 3.2% in Ukraine compared to 2021 (World Bank Group, 2023). With the beginning of Russia's full-scale invasion of Ukraine, the World Bank's forecasts for global economic growth have been reduced to 2.9% (World Bank Group, 2022). The data is expected to fluctuate as the war in Ukraine started by Russia has disrupted investment activity and trade, which is one of the main factors for the formation of a sustainable economy. The drought in Europe, COVID-19, climate change, and the crisis in global energy markets have also had an additional impact on this forecast.

It should be noted that the full-scale armed aggression of the Russian Federation has disrupted economic relations in the country and caused crises in most areas of socio-economic life. The main problem is the demographic crisis due to the forced migration of the population: the countries of the European Union, Canada, the United States, the United Kingdom, etc. According to the UN, more than 18 million people have fled their homes because of Russian aggression, which is 42% of Ukraine's population. Approximately 11 million Ukrainians have become internally displaced, some of whom had to leave their homes for the second time. As of October 25, 2022, almost 8 million people have left the territory of Ukraine. The majority of them went to the European Union and received temporary protection, some reunited with their families or stayed in the EU countries in accordance with the conditions of the Schengen zone (UNHCR, 2022). Speaking about the structure of the population that left the territory of Ukraine, it can be classified according to several criteria: age, gender and level of education.

- In the age structure of refugees, 47% were women, 39% were children, and 14% were men (UNHCR, 2023);

- Ukrainians fleeing the war were divided by their gender in the ratio 86/14, 86% were female, 14% were male (UNHCR, 2022). This ratio is not surprising, as on February 24, President of Ukraine Volodymyr Zelenskyy signed a decree restricting border crossings to men aged 18 to 60;

- 46% of refugees had higher education, 29% had completed vocational training courses, and 21% had only a complete secondary education (UNHCR, 2022).

Another problem is the destruction of infrastructure. Today, the issue of electricity and water supply is relevant, because every day Russia launches missile strikes on the country's critical infrastructure. For example, as of October 19, about 40% of Ukraine's energy system was seriously damaged.

Restricting the implementation of international agreements by blocking ports in the Black Sea. Currently, 4 ports in Ukraine are temporarily occupied, namely in Mariupol, Berdiansk, Skadovsk, and Kherson. As a result of the blockade of ports, a food crisis has begun in the world, which has resulted in a sharp increase in grain prices not only in Europe but also in the countries of the African continent and the Middle East. For example, in 2020, Ukrainian imports to Egypt amounted to 3.13%. More specifically, 23.5% and 62.1% of all grain was

supplied by Ukraine and Russia, respectively (Wrlld Bank Group, 2023). That is, in general, Egypt imported 85.6% of grain from countries that are currently at war. On July 22, the Black Sea Initiative was signed in Istanbul, an agreement between the UN, Ukraine, Turkey and Russia to establish a corridor to export grain from three Ukrainian ports: Chornomorsk, Odesa, and Pivdenne. The agreement was supposed to be in effect for 120 days, i.e. until November 19, with the possibility of extension.

On October 29, 2022, Russia once again violated international treaties by announcing its withdrawal from the grain deal, after an alleged attack on the Black Sea Fleet in the Sevastopol Bay. As of the end of 2022, the Black Sea Grain Initiative made it possible to export 9,521,645 tons of Ukrainian grain and agricultural products to the global market. The primary destinations were the Horn of Africa, Yemen, and Afghanistan (World Bank Group, 2023).

Loss of jobs, namely 5 million IDPs lost their jobs, and another 3 million working-age people remain abroad [Situation Ukraine]. This poses a problem for both the future of Ukraine and the current situation for employers in Europe. It is worth noting that before the full-scale war, approximately 5% of the population of Poland and 2.8% of the population of the Czech Republic were Ukrainians working abroad, i.e. mostly men. Today, the share of Ukrainians in the population of these countries has doubled. Despite the huge amount of potential labor, the governments of the countries faced certain problems, as some male migrants returned to Ukraine, freeing up "male" vacancies.

A large proportion of people lost their families, jobs, and homes because of the war, meaning that they have to start their lives in a foreign country from scratch (Grossi & Vakulenko, 2022). The vast majority are women and children of primary and secondary school age. And it is the absence of the latter that poses the greatest threat to the implementation of any recovery strategy for Ukraine: the world practice shows that sustainable economic development is based on the accumulation of personalized human capital, which is carried out in a special segment of the education system. Therefore, this segment should occupy one of the key places in any version of Ukraine's recovery strategy.

Since Russia's recognition of its Russian controlled administrations in the Donetsk and Luhansk regions of Ukraine, the European Union has been pursuing a sanctions policy that has had a significant impact on the Russian economy. To date, the EU has introduced 8 sanction packages, the latest of which was approved on October 6, due to the illegal annexation of four regions of Ukraine: Donetsk, Luhansk, Zaporizhzhia and Kherson. The eighth sanctions package included the following items:

- restrictions on imports of steel products, certain types of plastics and chemicals
- a ban on the use of European crypto wallets
- European companies are not allowed to provide IT and legal services to Russians
- export of civilian weapons, military transport and goods used in the aviation industry to Russia is prohibited
- limiting the price of oil (European Commission, 2022).

If we highlight the most stringent sanctions against the Russian Federation that have been imposed over the 9 months of the full-scale invasion, the following items can be included in this list:

- disconnection from SWIFT of Sberbank, Moscow Credit Bank, Rosselkhozbank and the Belarusian Bank for Reconstruction and Development (6th package of sanctions)

- a ban on the purchase, import and transfer of crude oil from Russia (6th package of sanctions)
- partial embargo on oil and gas (4th package of sanctions)
- a ban on russian ships entering EU ports (5th package of sanctions)
- blocking of the reserves of the Central Bank of the russian federation, which are in the banks of the G7 countries, amounting to 50% of all reserves (3rd package of sanctions)

It should be noted that the sanctions are taking effect, and, according to the World Bank's analysis, Russia's GDP will fall by 8.9% by the end of 2022. In turn, the International Monetary Fund predicts a 6% decline in GDP, and the Organization for Economic Cooperation and Development - by 5.5% compared to 2021 (European Council, 2023). Of course, the GDP decline was the result of a decline in trade, as a sustainable positive foreign trade balance is the key to a strong economy. According to the IMF forecast, exports from Russia will decline by 17.2% and imports by 25.4% by the end of 2022 compared to 2021. (European Council, 2023). Additionally, the maximum inflation rate is projected to reach 22%, according to the World Bank. At the same time, the International Monetary Fund predicts an increase in the inflation rate by 21.3%, and the Organization for Economic Cooperation and Development gives 13.9%. (European Council, 2023)

Ukraine needs to overcome not only the difficult path to victory, which we will definitely do, but also the long road to rebuilding post-war Ukraine, as thousands of homes, civilian and critical infrastructure have been destroyed. Even now, during the war, we are planning how Ukraine will be rebuilt. The first global presentation of the reconstruction project took place on July 4-5 in Lugano, Switzerland. The plan is designed for 10 years, divided into three stages and includes 15 areas (Ukraine Recovery Plan, n.d.). On October 25, the second conference on Ukraine's recovery was held. It was announced that in 2023, Ukraine needs at least \$38 billion to cover the state budget, and another \$17 billion is needed to urgently restore the country's social, energy, and transportation infrastructure. The European Union has assured that it will help Ukraine to the end, because this is a war not only between Russia and Ukraine, but also against the entire civilized world (Federal Government, 2022). Meanwhile, to substantiate the strategy of recovery under martial law, it is necessary to analyze the existing world practice

The most famous experience of post-war recovery is the so-called post-war economic boom (the golden age of capitalism) that began after the end of the war in 1945 and lasted until the late 1970s. The post-war boom was marked by sustained high economic growth and almost full employment in European and East Asian countries, especially in war-torn Japan (the Japanese economic miracle), West Germany (the economic miracle), France (the Glorious Thirties), Italy (the Italian economic miracle), and Greece (the Greek economic miracle).

The experience of rapid economic growth during this period is particularly interesting for Ukraine, which needs to compensate for the losses from Russia's aggression caused by the occupation of Crimea, southern and eastern regions, and to quickly and effectively restore the country's economy, including infrastructure destroyed during the war throughout the country. The economy as a whole also needs a new concept of reconstruction that is appropriate to the current situation.

Among the well-known modern wars are the Korean War, the Vietnam War, the war in Afghanistan, and the war in Syria. Typical military conflicts include: The Cyprus Conflict, the

Georgian-russian crisis, and the armed conflict in Eastern Ukraine. Compared to world wars, regional conflicts are characterized by fewer countries involved, a smaller spatial scale of hostilities, and are usually fought for limited political and military objectives, using traditional military forces and means. In some cases, there is no organized front. Most localized wars have been undeclared and began with provocations or border incidents that escalated into large-scale military conflicts. The attacker concentrates his forces and attacks suddenly at the beginning of hostilities, trying to inflict a decisive defeat before the enemy forces complete their deployment and the economy is put on martial law.

Military conflicts had even more limited political goals and even smaller spatial and temporal scales. These are usually armed uprisings, rebellions, border armed conflicts and incidents. Whereas local wars result in a qualitative change in the social condition of the victorious state, military conflicts do not involve a fundamental reorganization of state structures, i.e., mobilization of troops or the transfer of the economy to martial law.

In order to end a war and armed conflict as soon as possible, it is necessary to clearly understand the purpose of the conflict. This understanding allows for a compromise acceptable to the parties. The objectives of war were best formulated by B.H. Liddell Hart in his "Strategy of Indirect Action" (1954) (Hart, 2008). He believed that the purpose of war is to create a better world than the one that existed before the war. Based on the concept of a "better world", wars can be divided into "just wars", which lead to the development of human society as a whole, and "unjust wars", which lead to its destruction or simplification. Countries go to war not for the sake of war itself, but to achieve political goals. Therefore, "victory" is a political, not a military concept. Military objectives are only a means to a specific political goal, which is determined by the country itself. Military actions are only the basis for making a political decision, not for conquest, but for coercion. The goal of wars waged by empires is to control as many resources as possible and reform the "world order" in their interests.

From an economic point of view, the difference between war and armed conflict lies in the scale of economic changes and losses. For example, war leads to qualitative changes in the nature of society, as state institutions begin to perform specific functions caused by war. As a result, the life and economy of the society as a whole is rebuilt, which allows it to achieve victory over its enemies. During an armed conflict, political goals are more limited than during a war. It does not involve a radical transformation of the entire state system into a military system.

There are significant differences between war and a set of measures to restore the economy after an armed conflict. Post-war reconstruction was initially understood as the physical restoration of destroyed industrial enterprises, social facilities and devastated agriculture. Then, the concept was gradually deepened: in the 1940s and 1950s, the criterion of recovery was used as the achievement of pre-war gross production in monetary terms. Later (1970-1980), reconstruction began to be understood as a complex economic, social, and demographic phenomenon.

But in its most general form, economic recovery can be interpreted as a series of measures in various spheres of economic activity based on innovative approaches and technologies aimed at restoring the country's competitiveness, establishing production, improving living standards and increasing domestic and foreign demand.

Economic recovery should be based on the development of special programs to "resuscitate" the country's economic activity, and all efforts should be directed to restoring the industrial and agricultural sectors. Economic recovery after full-scale military invasion also requires the development of measures necessary to restore and further develop the economy of specific regions, ensure the return of the population and decent living conditions, address various social problems caused by the conflict, restore infrastructure and integrate it with the rest of the country, and develop mechanisms to ensure sources of recovery. First and foremost, recovery is preceded by political decisions based on geopolitical expediency and national patriotism, which determine the development model. Based on the results of the analysis of several armed conflicts that took place in the second half of the 20th and early 21st centuries, we can draw conclusions that would allow us to avoid the miscalculations and mistakes of others or to offset them:

- Develop and implement a modern concept of economic restructuring based on innovative development, taking into account the real geopolitical situation.
- Implementation of the strategy for the restoration and development of the East of the country and the return of Crimea, developed by domestic scientists and the government.
- Identification of key (priority) development sectors to ensure high competitiveness of goods and services in foreign markets and state support for these sectors.
- Adoption of appropriate legislation on full employment, fair wages, labor productivity and price stability.
- Develop mechanisms for the use and management of borrowed funds.
- Adoption of appropriate legislation to eliminate and prevent excessive concentration of production and capital and to prevent the formation of monopolies.
- Adopt effective economic mechanisms to prevent and combat corruption.
- Developing an effective social policy, i.e. a policy aimed at increasing the income and consumption of the population.
- Create special economic zones and science parks, or recovery areas.

For Ukraine to rebuild, it is not enough to receive financial support from international investors and partner countries, which is certainly extremely important. First and foremost, the government must rebuild housing for its citizens and put them to work, which will create new jobs and incentives to return to Ukraine. In addition, it is crucial to build sustainable institutions that will give international investors confidence in their investments in Ukraine. In turn, Ukrainians must realize that the state is primarily for and about the people who live in the country, working for the common good and future of the nation. Accordingly, on the instructions of the President of Ukraine, work has begun on the formation of the Funds for the Restoration of Ukraine in connection with the armed aggression of the Russian Federation, which will be used to address a number of problems in Ukraine depending on their group of specialization (KMU, 2022a). Possible sources of financial support for these funds include seized and confiscated assets of the Russian Federation, international assistance, direct contributions from partner countries, contributions from international organizations, investors, private donors - potential strategic investors, NGOs, business representatives and citizens, and the state budget of Ukraine. In order to strengthen the institutional capacity of the state in implementing the state policy of economic recovery, the National Council for the Recovery of Ukraine from the Consequences of War was also established (KMU, 2022b).

CONCLUSIONS

In the globalized world of the 21st century, the concepts of national security and economic growth are inseparable, as any armed conflict in a country's territory sets back its development for years, destroying critical infrastructure, factories, homes and schools, etc. Today, the fact of war is felt in most countries of the world, as well-established supply chains are disrupted, which affects prices in countries and, in the worst case, leads to a food crisis.

The Russian-Ukrainian war is the largest military conflict in Europe since the end of World War II. Identification of the impact of the Russian-Ukrainian war on the socio-economic situation in the country allows us to determine that the return of people to their homeland should be an extremely important point in the post-war period, since the population of the country is the main resource for further economic development. Given that most of the working-age population that left Ukraine in search of a safer place to live is already working abroad, this will not be easy. Undoubtedly, some will return home through family ties, or men who cannot travel abroad due to restrictions on crossing the border will go to their wives and children when the borders open, further complicating the situation. That is why the government of Ukraine should already be developing a clear plan for how people will be returned home. For example, it could be a housing reconstruction program for families whose homes were destroyed by the Russian occupiers. If Ukrainians are involved in the reconstruction process, it will create new jobs that will be an incentive to return to Ukraine.

Young people who are currently studying at universities will be actively involved in the process of rebuilding Ukraine. The country needs specialists who will have a full understanding of how to stimulate the economy to develop, how to build and maintain effective and transparent institutions. That is why further research should analyze the experience of other countries that have been victims of illegal and unjustified military invasions in order to substantiate recommendations for restoring and strengthening the country's economic potential and improving the living standards of Ukrainian citizens.

In order to substantiate specific consistent tools for Ukraine's economic recovery in the long term, further research should include generalization, systematization and comparison of the effectiveness of economic recovery mechanisms in place in the world and domestic practice, development of universal strategic and tactical tools for implementing the chosen strategy, development and evaluation of the predicted/possible results of the model. A key aspect of the elaboration of the strategies is the integration of methods developed by scientists and public services into a single mechanism of functioning to ensure maximum effect of the proposed reforms.

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IMPORTANCE OF INTERNAL CONTROL FOR CREATIVE ACCOUNTING

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Abstract. *Creative accounting enabled accountants to use accounting policies more flexibly. However, it was precisely this flexible application of accounting policies that led creative accounting to become synonymous with manipulative accounting in practice. Financial reports should reflect the actual state of business, but they are often subject to numerous manipulations. In order to prevent manipulations in financial reports, it is necessary for the company to have an established internal control system. In the research conducted through an online survey in Bosnia and Herzegovina, the connection between internal control and the use of creative accounting was investigated. The research confirmed two pre-set hypotheses that the use of creative accounting has an impact on the quality of financial reports, and that well-established internal control prevents to use of creative accounting.*

Keywords: *internal control, creative accounting, manipulative accounting, financial reports*

INTRODUCTION

The desire of users of financial statements is that financial statements provide objective, true and fair information. Precisely the information from financial reports is needed in the process of business decision-making and making business decisions. Investors and creditors use financial information to assess the quality of the company's results, as well as future cash flows associated with their investments. Realistic financial reporting implies that financial reports are prepared in accordance with the rules and regulations for financial reporting, that is, in accordance with accounting standards and regulations. Financial statements should not contain materially significant errors and irregularities, because the goal of compiling financial statements is to show the true and objective business of the company. Unlike real financial accounting, creative accounting includes all those procedures used to manipulate data in financial statements.

There are numerous irregularities in the company's operations, and often the consequences of fraud can be unfathomable. Precisely because of this, the need to introduce supervisory mechanisms, both external and increasingly internal supervision, first of all with the help of internal control and internal audit, was realized. Internal controls include a series of activities aimed at improving the quality of business processes. Company management shapes internal control systems. The goal of all employees should be to establish a quality system of internal controls. The task of internal controls is to detect illegal activities and to influence the prevention of such activities. Today companies pay more and more attention to risk assessment. Internal control can significantly affect the occurrence of errors and fraud in business.

I. Theoretical basis of the research

1.1. The term of creative accounting

Many people think that accounting is a "clean" job, and that financial fraud occurs outside of accounting. All over the world, including in Bosnia and Herzegovina, it is not an unusual situation that company owners and managers want to embellish the picture of the company's financial position, and try to show the company's performance better than what it really is. This is exactly the kind of "beautification" and "cleaning" that takes place in accounting. How the image of the company will be improved depends on the knowledge of the accountant.

Creative accounting at the very beginning had the task of enabling a realistic and objective presentation of the actual financial position and results of the company's operations through financial statements within accounting legal regulations. However, in practice, creative accounting has become synonymous with "manipulative accounting". Although financial reports should be true, fair and reliable, they are often subject to numerous manipulations. Manipulations that can be done often result from accounting standards, because accounting standards are often unclear and very complex, and assessments are subjective. In the beginning, creative accounting was not intended to be prohibited, but accountants were given the opportunity to apply accounting policies more flexibly. However, it is precisely this flexible application of accounting policies that has led creative accounting to become synonymous with manipulative accounting in practice. In this context, it is primarily based on whether there is flexibility and to what extent it is applied in accounting procedures (Belak, 2011).

The existence of flexibility, according to Mulford and Comiskey (2002), is necessary due to the economic environment and financial transactions that companies face, which in many cases are not similar in order for the same accounting practice to suit all of them.

Creative accounting can be defined as a process in which accountants use knowledge from the field of accounting standards and principles for the purpose of manipulating balance sheet positions and their values that are presented in financial statements. Creative accounting is not a one-time act, but creative accounting is a long-term process, a multi-year process that starts small and ends with a waterfall of accounting manipulations, but it is also a phenomenon that can be carried out in a legal and legitimate way and in accordance with the applicable accounting regulations, rules and standards (Negovanović, 2011).

Fraud mainly occurs where controls are weak, and where controls are not applied or do not exist. That is why it is very important to determine the level of internal controls in companies. It is precisely this strengthening of controls that reduces the possibility of fraud.

1.2. Purpose and motives for applying creative accounting

Based on the research, it was determined that there are numerous goals of using creative accounting in the company. If they are compared and analyzed in detail, we can conclude that these are goals, which are very important goals for management at all times.

Although different goals are stated by different authors, it is still possible to reduce them to the following four:

- maintenance of investor confidence,
- creation of bonuses, and use of stock options,
- preparation for takeover or defense against hostile takeover,
- postponement of income tax for future periods.

1.3. System of internal controls

Internal control plays an increasingly important role in the company's internal control system, and is reflected in the protection of assets, prevention and detection of fraud and irregularities that occur during business operations. Evaluation of the internal control system is carried out by an internal audit. Internal control was initially tasked with preventing and detecting fraud. Today, the tasks of internal control are more complex, so different definitions of internal control can often be found in the literature. "Internal control is a set of measures and procedures for constantly checking the operation of the accounting system and the business system in general with the aim of detecting and correcting errors before the audit procedure." (Vujević, 2003). The system of internal controls is based on control and organizational procedures, but also other measures and policies that are adopted with the aim of implementing the business policy adopted by the management, as well as protecting the company's assets. Internal control acts preventively, detects errors and frauds, ensures the correctness of accounting records, in order to have reliable financial information. Internal control is an extremely complex activity, which is extremely important for the company.

The internal control system is designed and implemented by the employees of the company at all organizational levels, but the management should make additional efforts so that the expected benefits are greater than the expected costs in order to achieve the effectiveness of internal control. The internal control system is established differently from company to company, primarily because of the different goals they have, but also because of the size of the company, number of employees, organizational structure, type of activity, etc. Internal control implies analysis of the environment or conditions in which control is carried out, then risk assessment, undertaking control activities, information and communications, and supervision and monitoring.

1.4. Creative accounting in the system of internal controls

Companies have their own specifics of work, organization, or activities. Establishing a quality and reliable system of internal controls in order to prevent the application of creative accounting is not easy to implement. Internal controls were created to protect the company from creative accounting and various frauds. In order to prevent creative accounting, internal controls must be applied at all stages of the accounting process, and include control of the input, processing and output of information from the accounting system. Internal controls include "drafting of written procedures that will define responsible persons, description of activities, procedures and execution deadlines and double signature records" (Bedeković, 2013). To prevent creative accounting, internal controls are focused on the division of duties and authorities, and the employee cannot make and hide mistakes, irregularities and fraud, or execute transactions, or have control over the company's assets (Gulin et al., 2012).

1.5. Overview of previous research

Many authors analyze the importance of internal control in preventing creative accounting. Tušek et. Al. (2014) define internal control as a series of procedures and actions that, through the principle of self-control, are performed by employees at all organizational levels, whose goal is to improve the efficiency and effectiveness of all business processes and operations as a whole. The Association of Certified Fraud Examiners (ACFE) (2020) lists fraud in financial

statements as the main forms of fraud committed by employees of the organization, along with corruption and embezzlement. Halilčević (2020) believes that in order for the internal control system to fulfill its role in preventing fraud, it is necessary to properly assess the risks faced by the company, and to design appropriate controls based on the assessed threats. Rajković (2021) believes that the growing number of frauds and financial scandals in the last few decades justifies the skepticism and fear of external users regarding the credibility of financial statements presented by reporting entities. The COSO framework (2013) states that "transaction controls are the most important controls in an enterprise, since they are directly related to risks in business processes established to meet set goals." According to Deloitte (2021) "understanding the most important risks that threaten the company and designing relevant internal controls to mitigate these risks can be a key differentiating factor in the growth and development of the company". Mahaček, Bolfek and Šakota (2015) believe that with the establishment of internal control, as well as internal audit, it provides greater opportunities for detecting and preventing fraud.

II. Methodology

II.1. Population and Sample

Empirical research that was conducted tried to prove what are the motives for accounting fraud, and what are the consequences of these frauds. The target population in the research were employees in accounting, finance and internal auditors on the territory of Bosnia and Herzegovina. A questionnaire was used to examine the effectiveness of internal controls and creative accounting procedures. 91 employees who duly returned the completed survey questionnaires were surveyed.

The paper set itself the task of investigating the significance of internal control in preventing the application of creative accounting.

In accordance with all the above, the paper sets out the main and one auxiliary scientific research hypotheses:

H1. The application of creative accounting has an impact on the quality of financial statements.

PH1. With a well-established internal control, the application of creative accounting is prevented.

II.2. Statistical Analysis

The conducted research is based on the collection of primary data, a method of surveys through a highly structured questionnaire intended for employees in accounting, finance and internal audits. Out of the total number of questionnaires sent to 120 e-mail addresses, in the period from October 1, 2022 to February 1, 2023, 91 duly completed questionnaires were returned, which is a response rate of 76.00% of the total sample. The response rate is considered acceptable for this type of research, but it is noted that the results of this research are not a rule, but are certainly a good guideline for future research.

Adequate control is considered to have been established if it was planned and designed by the management with the aim of managing the organization's risks effectively, and achieving the organization's goals efficiently and economically.

III. Results

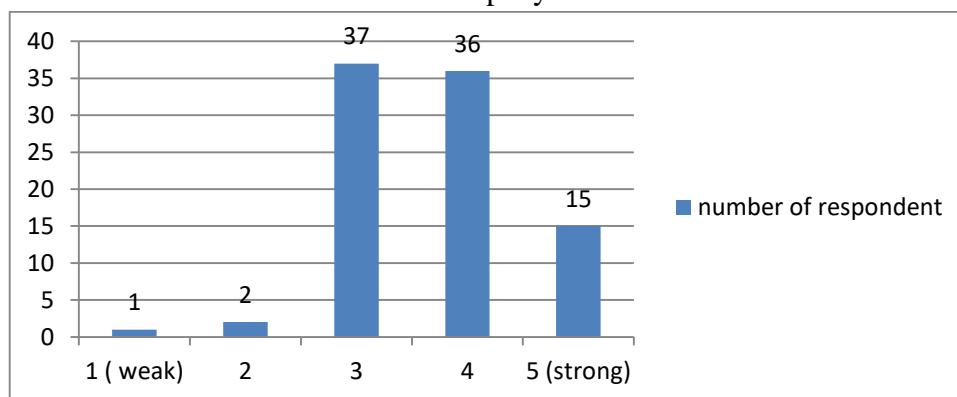
At the beginning, creative accounting aimed to enable accountants to apply accounting policies more flexibly, however, in practice, creative accounting has become synonymous with manipulative accounting. In order to prevent manipulations with accounting data, it is necessary to introduce internal controls.

This research sought to investigate whether accountants, financiers and internal auditors believe that internal control is important for preventing the application of creative accounting.

On the basis of 91 duly completed questionnaires, a new picture was obtained about the application of creative accounting and the efficiency of internal control. In the research that was conducted, the respondents made an exceptional contribution to a better understanding of the subject matter. Out of 91 respondents in the survey, 36 heads of accounting, 20 clerks employed in the accounting service, 27 clerks employed in finance, and 8 internal auditors gave answers to the questions.

Most respondents (68.1%) believe that the application of creative accounting affects the quality of financial statements. A smaller number (29.7%) of them believe that the application of creative accounting has little effect on financial statements, while there are the least number of those (2.2%) who believe that creative accounting has no effect on financial statements.

Figure 1. Surveyed according to the evaluation of the efficiency of internal control in the company

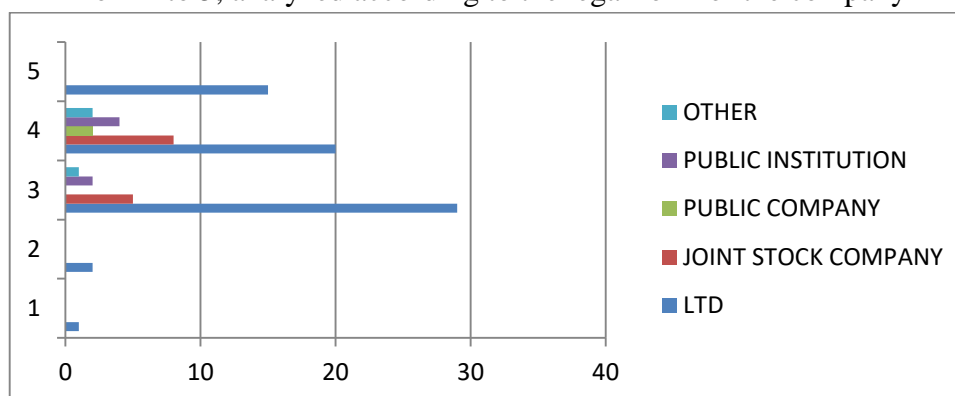


Based on the conducted research on the evaluation of the level of internal control, where the respondents rated the internal control in their company on a scale of 1 to 5, the fewest respondents (only 2 respondents) believed that internal control was weak in their company, while the most respondents declared for moderate control in the company (37 respondents), while 15 respondents declared that a strong internal control was established in their company (figure 1).

The research results show that the legal form of the company has no significant influence on the evaluation of efficiency, namely the largest number of respondents, regardless of the legal form, rated the internal controls as very good, good and excellent respectively, as shown on figure 2.

IMPORTANCE OF INTERNAL CONTROL FOR CREATIVE ACCOUNTING

Figure 2. Surveyed according to the evaluation of the efficiency of internal controls on a scale from 1 to 5, analyzed according to the legal form of the company



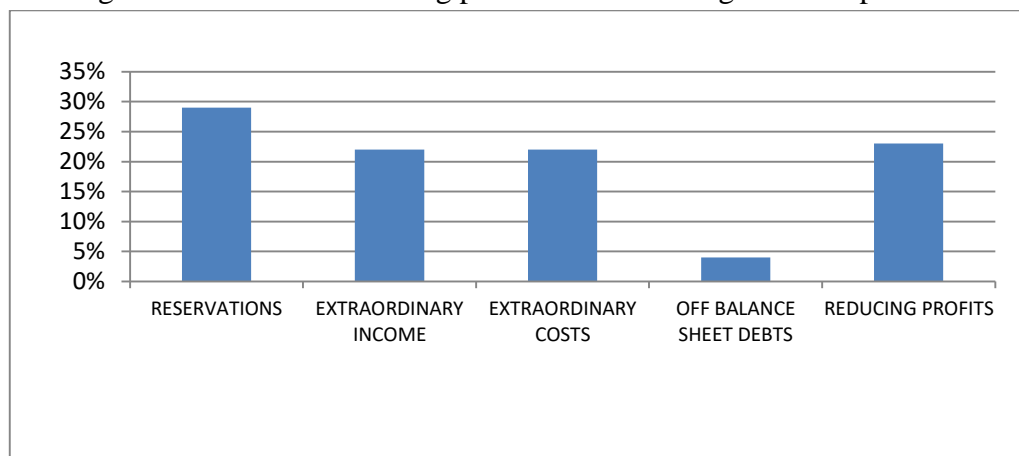
Based on the research, an analysis was made of the average efficiency rating of the internal control system according to the legal form, which is shown in table number 1. In the case of limited liability companies, although there is the lowest level of implementation, where they are established, internal controls are rated highly, and the average rating is the highest 3.69. Probably due to the smallest number of respondents, the highest rating was given to public companies with an average rating of 4. Then followed by institutions with an average of 3.67, joint-stock companies that have established internal controls to the greatest extent had the worst average rating of 3.62.

Table 1. Respondents according to the average assessment of internal control observed by legal form of the company

| LEGAL FORM | AVERAGE GRADE |
|------------------------------|---------------|
| LTD | 3,69 |
| JOINT STOCK COMPANY | 3,62 |
| PUBLIC COMPANY | 4,00 |
| PUBLIC INSTITUTION | 3,67 |
| OTHER | 3,70 |
| OVERALL AVERAGE GRADE | 3,73 |

The most common procedures of creative accounting in Bosnia and Herzegovina, as well as those applied in the world, refer to provisions, then extraordinary income and extraordinary expenses, as well as the reduction of earnings. Only four respondents mentioned off-balance sheet debts as a creative accounting procedure (Figure 3.)

Figure 3. Creative accounting procedures according to the respondents



These data are also confirmed by the analysis of financial statements, where it is observed that the most frequent manipulations occur precisely on the listed items in the balance sheets of companies in Bosnia and Herzegovina.

By applying multiple regression analysis, the assumption about the influence of creative accounting on the quality of financial statements was verified in the research.

Table 2. Statistical presentation of the influence of creative accounting on the quality of financial statements

| Model | R | Adjusted R Square | Std. Error of the Estimate | R Square Change | F Change | df1 | df2 | Sig. Change | F | Durbin Watson |
|-------|------|-------------------|----------------------------|-----------------|----------|-----|-----|-------------|---|---------------|
| 1 | ,686 | ,450 | ,60202 | ,471 | 23,254 | 1 | 26 | ,000 | | 1,756 |

The correlation coefficient R (0.686) reveals a medium-strong connection between the observed variables, the influence of creative accounting on the quality of financial statements. F (23.254) indicates that the results are statistically significant, and it is concluded that the application of creative accounting is related to the quality of financial statements. The obtained data confirm hypothesis H1, which assumes that there is a statistically significant relationship between the application of creative accounting and the quality of financial statements.

Table 3. Statistical presentation of the connection between internal control and the application of creative accounting

| Model | R | Adjusted R Square | Std. Error of the Estimate | R Square Change | F Change | df1 | df2 | Sig. Change | F | Durbin Watson |
|-------|------|-------------------|----------------------------|-----------------|----------|-----|-----|-------------|---|---------------|
| 1 | ,644 | ,415 | ,63216 | ,418 | 18,546 | 1 | 26 | ,000 | | 1,486 |

IMPORTANCE OF INTERNAL CONTROL FOR CREATIVE ACCOUNTING

The correlation coefficient R (0.644) reveals a moderately strong relationship between the observed variables, the connection between internal control and the application of creative accounting. F (18,546) indicates that the results are statistically significant, and based on this, the conclusion is reached that a well-established internal control affects the prevention of the application of creative accounting. The obtained data confirm hypothesis PH1, which assumes that there is a statistically significant relationship between internal control and preventing the application of creative accounting.

CONCLUSIONS

Accounting should be a "clean" job, given that it has principles that should be followed. However, as in any business, "creative" accountants appeared in accounting, and with them creative accounting. Creative accounting does not have to be illegal, but the question arises as to whether it is ethical or not. Financial reports should be true, fair and reliable, because only in that case they justify their role. Financial statements are often subject to numerous manipulations. Maneuvering space is found in accounting standards, which are often unclear and very complex, and assessments are subjective.

With the introduction of internal and external control systems in the company, it is possible to reduce, but not eliminate, the percentage of fraud and manipulation by employees or company management. In order for the company's management to confront errors and frauds that may appear in the financial statements, it helps a lot: a reliable accounting system, appropriate control procedures, as well as a clear definition of the policy of accounting and financial statements. Adequate human potential, an understandable code of ethics as well as the provision of continuous training for employees regarding accounting errors and manipulation of financial statements are also needed.

In the end, it can be concluded that the application of creative accounting does not only endanger the company that applies it, but also the entire economic system of the country. In the fight against this growing problem, companies cannot rely only on existing controls to prevent and detect fraud, but must clearly define illegal activities and sanctions for those who commit fraud. Discovering and researching the causes of fraudulent financial reporting, as well as a preventive approach and prevention of illegal and socially unacceptable behavior, aims to increase the level of security of users of financial information. Bearing in mind the responsibility that the accounting profession has towards the social interest, as well as the scope of forensic accounting in discovering the causes and techniques of fraud, it is very important to point out future activities in the direction of developing unique educational and certified programs at the state level. Given that criminal activities are represented in all spheres of society and are a burden to both developed and less developed countries, it is certain that this topic and the suppression of the application of creative accounting will be the subject of new considerations and further research.

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THE VUCA CONCEPT IN THE DIGITAL SPHERE

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Abstract. *The article's main goal is to explain the idea of VUCA in detail and show how it may affect digital marketing efforts. The article's goal is to give those interested skills and strategies to deal with the difficulties and uncertainties in a constantly evolving digital world by examining the idea of VUCA in the context of digital marketing. It will examine how decision-making in digital marketing can be influenced by elements including volatility, uncertainty, complexity, and ambiguity and how these factors can be effectively controlled. The article's main objective is to inform about the significance and influence of the VUCA concept in the digital sphere and to offer helpful advice for adjusting to and thriving in a digital marketing environment.*

Keywords: *volatility, uncertainty, complexity, ambiguity, digital marketing, strategies*

INTRODUCTION

Systematic cost reduction, creating an agile operating model, mastering collaboration, developing future-ready capabilities, being aware of the use of digitalization, measuring impact and sustainable value, and the courage to innovate and transform in the right way are the characteristics that sustainable business should embody. These necessities fluctuate across various industries and sizes of businesses. The frameworks, information, presumptions, interests, and expectations used by managers in big, medium, and small businesses to make choices are all evolving quickly.

Managers must make judgments with more ambiguity due to the VUCA reality. Businesses must learn to navigate and manage their plans in a VUCA-influenced environment if they want to first survive and then develop. Businesses will survive and thrive in the face of a variety of growing unfavorable and intensely competitive business conditions if they recognize and take advantage of the opportunities and possibilities for change in VUCA market conditions. Therefore, it gets difficult for the top executives of organizations to consider fresher concepts for sustainability and expansion in the unusual circumstance.

VUCA is an acronym that stands for volatility, uncertainty, complexity and ambiguity. The term was originally used in the military context to describe the rapidly changing and uncertain combat environment, but was later adopted in business and leadership to illustrate today's global business environment (Whiteman, 1998).

These four factors create a powerful cocktail that can lead to market volatility and unpredictable results. It is a measure of how risky a financial market is and how quickly it can change. Each of these factors can create a significant change in the price of an asset. For example, volatility refers to how much a security's price fluctuates throughout the day. Uncertainty refers to the lack of clarity about future events and how they might affect the price

of an asset. Complexity measures how many possible outcomes there are for a given situation, and ambiguity is the presence of many different interpretations of a situation (Gerras, 2010).

Here is a more detailed explanation of each component of the VUCA acronym:

Volatility: Refers to the rapid pace of change and instability that characterizes today's business environment. Factors such as economic fluctuations, technological innovations, political and social changes can generate volatility in an unpredictable and rapid manner.

Uncertainty: This refers to the lack of accurate information and knowledge to make correct and predictable decisions. The VUCA business environment is often characterized by ambiguity, uncertainty and a multitude of unknown factors that can affect the results and direction of organizations.

Complexity: Describes the interconnectedness and diversity of factors and relationships that influence the business environment. Organizations face complex systems of interactions, unpredictability and multiple challenges such as technological change, regulation, cultural diversity and global competition.

Ambiguity: This refers to the lack of clarity and interpretation in the business environment. Information may be incomplete, contradictory or difficult to understand, making decision-making more difficult. The consequences of actions can be uncertain and the results can be interpreted in many ways.

The abbreviation VUCA stands for a volatile, unpredictable, complex, and ambiguous environment in the area of digital marketing. The phrase was first employed in a military context before being modified to reflect the commercial climate and the quick changes occurring in the digital economy (Bennett & Lemoine, 2014).

Therefore, in digital marketing the acronym VUCA is interpreted as (Hall & Rowland, 2016):

Volatility: The digital environment is quite unstable and changes very quickly. Rapid changes in consumer preferences, trends and technologies require continuous adaptation of the marketing strategy.

Uncertainty: The outcomes and effects of campaigns are frequently highly unpredictable in digital marketing. Search engines and social networking sites' algorithms and platforms are subject to unforeseen changes, and it can be challenging to forecast customer behavior.

Complexity: There are many different channels, technology, and techniques used in digital marketing. It can be difficult for marketers to manage the complexity of this digital environment and incorporate these into a coherent plan.

Ambiguity: Information in digital marketing is frequently ambiguous or inconsistent. As there are many variables and circumstances that might affect results, interpreting data and assessing the efficiency of campaigns can be quite ambiguous.

Organizations and executives must learn specialized skills to deal with the VUCA environment's rapid changes and unpredictability. These abilities include flexibility, agility, ongoing education, strategic thinking, and the capacity for making choices in the face of ambiguity (Xing et al., 2020). In general, in digital marketing the concept of VUCA emphasizes the need for adaptability and the ability to act quickly in response to changes in the sector. To react to new digital trends and opportunities, companies need to be proactive in managing uncertainty and develop flexible marketing strategies to adapt to new digital trends and opportunities (Tsui & Dragicevic, 2018).

Future research on VUCA in other knowledge areas

Regarding the VUCA concept, there may be new research opportunities related to the different fields of knowledge, such as: management, strategic management, human resources, *Management* - managing circumstances where uncertainty and turbulence are key components requires the development of specific talents. The characteristics of a leader must be redefined. Given the difficulty of developing a future perspective based on present information, skills such as vision, which have been crucial until now, are less useful in the context of VUCA. According to Schoemaker et al. (2018), adaptability is a crucial component of research. The emergence of adaptive leadership has been a recurring theme in the research.

Strategic management - the investigation and exploitation of techniques must be well balanced in the ambidexterity literature. In the face of an uncertain world, aspects of adaptation and foresight take on significantly greater significance (O'Reilly & Tushman, 2008). The speed of response should be seen as a key component, with a direct impact on the organizational development and human resources (HR) of the company. Due to the more relative nature of the value of information learned from the environment, higher doses of intuition are required (Robinson et al., 2017). In addition to adaptation and flexibility, appropriate risk management at organizational, group and individual levels must be taken into account (Getele et al., 2019).

To address them as fast as possible and lessen their consequences, it is important to identify the predecessors of a VUCA element within an organization (Codreanu, 2016; Heinonen et al., 2017). Organizational development is one of the aspects of this VUCA reality to which the management of the firm must give the most attention because it is essential to the proper evolution of the business.

Human Resources - Issues like the selection of staff are particularly pertinent at the moment because of the features of the contemporary environment. Their requirements must be viewed through a VUCA lens since being able to adjust to environmental changes is crucial. Although factors like dedication and the capacity for teamwork must always be taken into consideration, given the unique features of the setting, they now take on a key role.

To be able to give firm managers sound decision-making tools, the management of the flow of knowledge between departments must be effective and transparent. New skills are required in this emerging reality, and the HR department must put them into practice based on effectiveness and adaptability. The environment's features and the field's growth and effectiveness are closely related, therefore it is important to model a work team's dynamics appropriately to foresee needs (Mathieu et al., 2014).

Similar to how new jobs necessitate new profiles, human resource departments have difficulties in this area (Reichel & Mayrhofer, 2009). Given that they are essential resources for developing dynamic capabilities, they also involve the development of individual skills as a component of change within the organization (Kamprath & Mietzner, 2015). As a result, there is particular interest in the creation of suitable technologies to aid management teams in tackling VUCA difficulties.

Organisational development - Precision and agility are required to react quickly in a chaotic and changing environment. It is crucial to properly manage the company's own expertise and transfer it to all relevant departments. The HR division must play a major role in helping the organization develop these competencies. It is crucial that the organization's

demands are communicated, as well as its capacity to respond appropriately to the environment. All of this has to have the management team for the company's active support.

Education and learning - An unfamiliar setting necessitates learning new information, and executive training is a sector that is continuously changing. To manage such an environment, where unpredictability and instability play a particularly prominent role, it is necessary to have specialized abilities. Given this reality, new teaching concepts are emerging to close these gaps.

These concepts include the curriculum development of the new generation of TMT components and the adaptation of VUCA teaching to give educational institutions specialized tools to help them tackle the contemporary problems. Creativity and innovation, with an emphasis on both leadership and management, stand out among the emerging leadership talents as essential components.

CONCLUSIONS

From this vantage point, a wide range of pertinent topics could be the subject of study in the near future. These include innovation and entrepreneurship, which have long been influenced by this shifting environment and are directly related to innovation and performance improvement in businesses operating in unstable environments (Yasir et al., 2017). Last but not least, management and leadership find training to be a very fascinating discipline (Orphanos & Orr, 2014).

We can also make observations about other fields of knowledge that, despite their importance, have received little to no research, such as the changes in B2B and market relations that are occurring as a result of the introduction of new technologies and their implications for e-commerce (Iyer et al., 2009). A key component of effective business management is the creation of control and management systems for customer connections (Bonnemaizon et al., 2007).

Public administrations and their performance in the VUCA environment, as well as the development of citizen engagement in a more dynamic environment and its ramifications (Stivers et al., 2018), as well as the field of complexity management constitute a distinct field.

The company environment, in particular, and reality in general are both determined by the VUCA context. It is notably gaining ground in the fields of strategic management, leadership, human resources, and education and learning. Businesses need to respond to this new reality with stronger guarantees. As a result, this gives a chance for the scientific community to gain a deeper understanding of the direction that business management is taking.

This literature analysis has revealed the need to reconsider several aspects of leadership and innovation in its numerous parts, which has ramifications for managers. Leadership in a VUCA environment must be supported by the organization's excellent adaptability. In this perspective, HR departments should emphasize promoting the ongoing acquisition of new skills related to environmental adaptation and resource flexibility. Structures that are far more adaptable and flexible should also be implemented to promote organizational learning.

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HARMONIZATION OF ENVIRONMENTAL MANAGEMENT ACCOUNTING - TOOL FOR MANAGING ECONOMIC RECONFIGURATION

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Abstract. *The market economy implies the permanent optimization of an accounting system that ensures: modern methods, policies, and strategies compatible with the requirements of the current economy oriented towards the support of long-term sustainable economic activities. The increase in business relations' complexity has determined a profound revolution in management and implicitly in accounting as the main source of information and assistance in the decision-making process. Also, the awareness of the effects of economic activity on the environment leads to the reconsideration of the financial accounting system, by integrating environmental aspects, thus environmental managerial accounting contributes to providing relevant solutions and reporting adequate information. In this sense, this research presents the importance of streamlining all stages of organizing environmental management accounting to identify relevant solutions for managing adequate information and all existing resources available to economic entities.*

Keywords: *environmental accounting, management, sustainability, information.*

INTRODUCTION

Nowadays, environmental issues have become a common point of global concern. In today's economic context, one of the biggest challenges is to maximize economic benefits without harming the environment. Therefore, accounting must support sustainable development by providing basic information about the social and environmental impact of the entity. The development of the economy at the national and international level requires increasing efforts to find the most rational means of improving management accounting regarding environmental management in order to manage the resources necessary to reconfigure a sustainable economy (Kaya & Yokobori, 1997). Social economy takes into account the objectives of sustainable development, in the sense of responding to current needs without affecting future generations (Sneddon, Howarth, & Norgaard, 2006).

The emergence of sustainability concept brought new terms to the theoretical plane that had to be conceptualized to become operational, such as: viability, vitality, sustainability, and sustainable development of an entity, activities, branches or even countries (Rogers, Jalal & Boyd, 2012). In 1987, the Bruntland Commission, in its final report "The Common Future",

defines sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Bruntland, 1987). Sustainability or sustainable development is a holistic approach that considers ecological, social and economic aspects, considering that these aspects must be considered together to achieve a level of long-term prosperity (Rogers, Jalal & Boyd, 2012). Sustainability in the business environment is not precisely defined, but rather resides in a series of recommendations and actions that do not only pursue immediate profits and leave a legacy for future generations of a sustainable economic environment and a cleaner planet.

Thus, sustainable development represents that sustainable development, which focuses on the balance between social, ecological and economic elements, development that satisfies current needs, without compromising the ability of future generations to satisfy their own needs, offering us a framework of doing so to generate economic growth, achieve social justice, practice green stewardship and weigh governance with the aim of achieving sustainable long-term progress.

I. The role of environmental management accounting in the sustainable development of the business environment

In terms of the sustainable development of entities, the starting point is environmental accounting - a current theme, as it encompasses an in-depth study of environmental issues, both locally and globally, thus helping to improve the environment through highlighting the use of natural resources.

The integration of the environment into the life of the entity requires taking it into account both at the technical, legal, economic, but also accounting and financial level (Morelli, 2011).

Bartolomeo and collaborators analyze the notion of environmental management accounting, defined as the process of generating, analyzing and using financial and non-financial information intended to support decisions in an entity (Bartolomeo et al., 2000). Bennett considered environmental management accounting as "the link between environmental management and management accounting" (Bennett, Bouma & Wolters, 2002). Environmental management accounting is a combined approach that provides financial-accounting information, represented by costs and balances of material flows, to improve the efficiency of the use of these materials, reduce risk and impact on the environment, thus contributing to the reduction of environmental protection costs (Jasch, 2003).

According to the United Nations, environmental management accounting represents the identification and evaluation of the entire spectrum of environmental costs resulting from pollution prevention, as well as the integration of these costs and benefits in the decision-making process (United Nations Division for Sustainable Development, 2001).

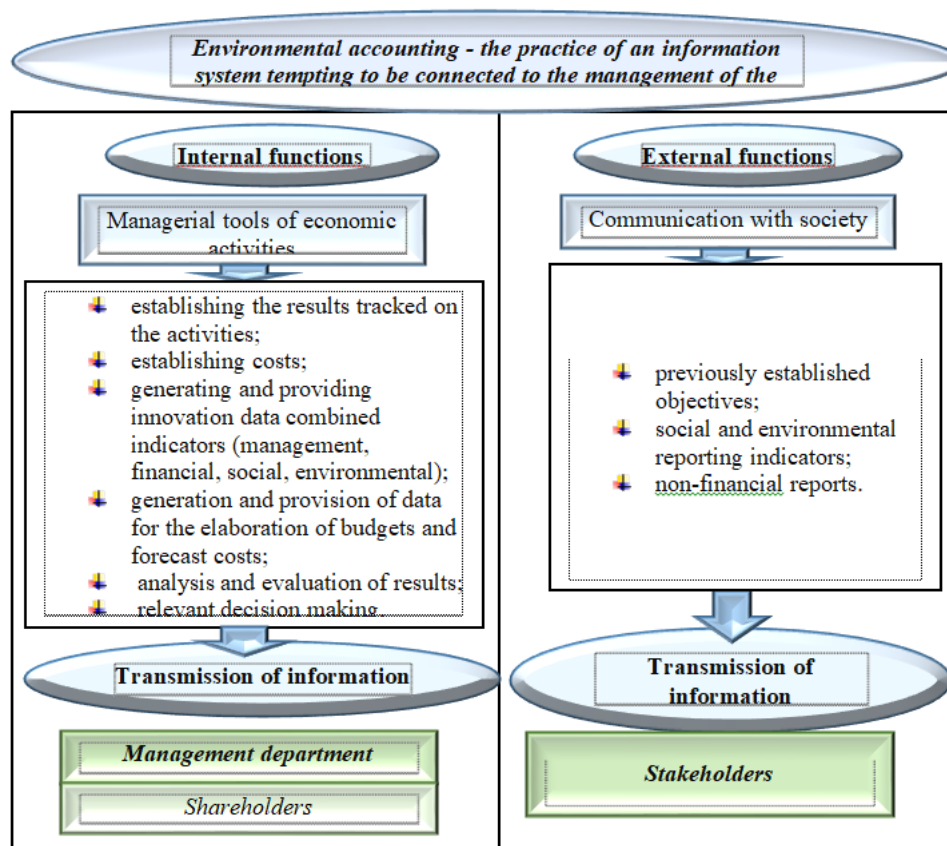
Therefore, environmental managerial accounting has as its main object the production of useful information in decision-making (Stanescu et al., 2021). Such accounting ensures the sustainable development of the entity's activity and analyzes the costs and benefits related to the environmental impact on the activity, the contributions to the recognition of the high level of environmental taxes, capital and operating expenses generated by the use of pollution

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control equipment. Environmental management accounting is a control tool that provides management with basic information for the decision-making system, which concerns the entity's internal management, but is of particular importance and constitutes the basis for reporting external environmental information.

The environmental accounting system implemented at the level of economic entities contributes to complying with the requirements of sustainable development, through the value estimation of financial and non-financial information. Environmental accounting through the specific functions (figure 1) makes it possible to manage and analyze environmental costs, as well as to transmit the information obtained both internally and externally to the entity.

Figure no. 1. The functions and role of environmental accounting



Environmental managerial accounting has a decisive role in the processing of traditional financial information, however, it will also contribute to the evaluation and compliance with the accounting procedures approved by the management of the economic entity regarding the situation of environmental protection expenses by analyzing: i) the existence of supporting documents corresponding to the registered environmental operations; ii) the veracity of the operations and the analysis of their usefulness; iii) compliance with the legal provisions and the decisions of the entity's management regarding the way to complete the documents; iv) correction of errors according to legal provisions; v) the authenticity of the documents that were the basis of the registered operations; vi) compliance with the procedure regarding the flow of documents; vii) compliance with the accounting procedures approved by the management of the economic entity.

II. Measuring and assessing the sustainability of a business

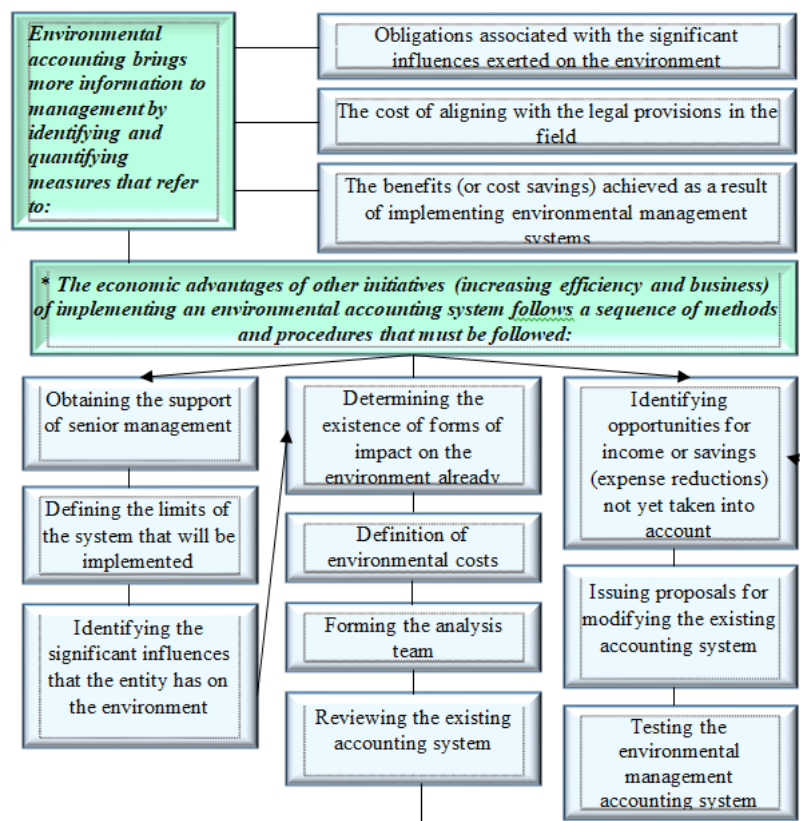
Entities through decision-makers can use the information provided by environmental management accounting to make decisions that can eliminate the negative effects that influence the financial performance of the entity and the environment. The identification of environmental costs and their recognition in the accounting of the entity related to a product, work, service or economic system is necessary to make relevant and successful managerial decisions. Knowing and managing current, future and possible environmental costs is a starting point for achieving the objective of minimizing environmental costs, strengthening recovery activities and streamlining environmental performance.

Information on environmental costs is determined throughout the managerial process to substantiate reliable decisions regarding production cost modelling.

The data obtained are particularly valuable for management initiatives aimed at specific environmental objectives. Environmental Management Accounting / Environmental Management Accounting provides not only the cost data needed to assess the financial impact of these initiatives, but also the physical consumption data (raw material use and renewal rate) that help characterize how these initiatives will had an impact on the environment.

Their role is to identify and properly collect physical data that can lead to the improvement of the decision-making process within the entity. Environmental data is no exception.

Figure no. 2. Environmental accounting - essential factor in assessing the progress of a sustainable economy in the long term



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In order to measure and evaluate the degree of sustainable development of an entity, need a series of the most relevant indicators, in accordance with the activity carried out, which reflect reality in the pursuit of predetermined objectives (Ionescu et al., 2020). By their nature, indicators are used to measure a variable appropriate to the achievement of the proposed goal, the desired resources, the effects to be achieved, the quality index or conjuncture variables. The objective of non-financial indicators is to establish a performance measurement system that allows the entity to determine the defining elements that make up long-term financial performance.

The interest given to these indicators stems from the awareness of the fact that the financial indicators that measure performance are by their nature: simplistic measures of results; far from being familiar and intuitive for the people who generate the operations (Diaconu & Albu, 2003), instead the non-financial indicators complement the financial ones, better characterizing the company's performance, because they directly touch sensitive points of the organization (Robu & Sandu , 2006).

III. Management tools needed to reflect environmental impact in accounting

Traditional accounting does not correspond to the new requirements to reflect the environmental impact in accounting, thus, the adoption of new methods and instruments specific to environmental accounting is essential. Integrating environmental management tools into the day-to-day management process can, theoretically, be a problem, given the fact that leaders normally use financial data to coordinate their activity. In this context, the environmental management system, standards, environmental audit play a particularly important role: they provide a framework for the creation of several technical instruments for measuring, monitoring or evaluating environmental impact. For entities, environmental accounting has the role of increasing the efficiency and effects of the environmental protection measures taken within them and to keep records of environmental expenses and income, to report and reflect them in the financial statements.

Table 1. Classification of environmental management tools according to purpose and the data they use

| Information used or provided | Piloting tools | Monitoring tools | Control tools |
|------------------------------|--|--|------------------------------------|
| Financial | Environmental budgets The green dashboard Evaluation of environmental accounts | Environmental accounts Environmental indicators | Environmental audit |
| Physical | Environmental budgets The green dashboard The eco-balance | Environmental indicators | Eco Balance Environmental audit |
| Qualitative | ISO 14001 standard The EMAS standard | | Environmental audit |

Surce: Bennett et al. (2002)

Text Non-financial indicators are an important part of the performance of an economic entity. The success of an entity is the team within it, but it must also be supported by a human resources policy aligned with the business strategy. The connection of strategic objectives with performance, performance monitoring through indicators and their concretization represented and represent the crucial challenge of any economic entity.

Performance indicators help quantify the realization of a result, providing visibility into the performance of individuals, teams, departments and organizations, allowing those who have decision-making power to take action towards the achievement of the intended goal. In financial management and operational accounting, there is a close connection between the level of customer satisfaction and the future performance of economic entities.

CONCLUSIONS

The growing pressure on economic entities both to reduce costs and to minimize the impact exerted by economic activity on the environment has contributed to their social and environmental responsibility.

The consideration of environmental issues by international and national corporations, as well as by their leaders, is the result of a gradual evolution of the attitude of the entities, starting in 1970. From an attitude of ignorance and denial regarding environmental issues, today, more and more entities consider environmental performance as an important element of their business strategy.

In order to ensure the success of the harmonization of environmental managerial accounting, it is necessary that the three major objectives presented previously (economic, environmental and social) be fulfilled simultaneously. Harmonization is the process by which the managerial accounting of the environment needs to be put on its normal course of fulfilling its objectives and functions, thus contributing to the better management of resources, to the practice of efficient management over long periods of time. At the microeconomic level, the management accountant is the one who will have to design, implement and correctly manage all the environmental managerial accounting activity, on which the practice of high-performance management depends to a great extent.

Currently, the realization of an integrated system of indicators encounters many difficulties, in the sense that the impact of the approach remains limited in areas such as measuring the scope of the potential to influence and monitoring progress on the researched topic. There are uncertainties especially in the methodological aspect, such as: the object of the measurement, the method of measurement, the spatial limits and time horizons, the influence of the different measurement of the variables on the use of the indicator frameworks.

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THE DIGITAL LEADERSHIP BEHAVIOURS OF X, Y, Z GENERATION NURSES IN THE DELIVERY OF HEALTH SERVICES

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Abstract. *Younger nurses are more active and agile in nursing leadership comparing to as senior nurses are about to retirement. Digital era and technology forces nurses to be more dynamic and adaptive. Thus, they try to behave as digital leaders. The aim of this study to link the relationship between young digital nurse leaders' organizational resilience and commitment in hospitals. To test this relationship, the data were collected from nurses in three groups: X, Y and Z generation. The data were collected by four scales and analysed by SPSS program. The results show that digital leadership has a positive effect on both organizational resilience and organizational commitment. Moreover, organizational resilience and organizational commitment is positively correlated. The young nurses have more digital leadership skills and behaviours comparing senior ones. But the perception of organizational resilience and commitment of the X generation nurses was higher than the Y and Z generations. The results of this study may guide to the managers of healthcare organization to pay attention young nurses in adapting technology and guide to senior nurses through applying digital leadership behaviours.*

Keywords: *Nurses, X, Y and Z generation, digital leadership, organizational resilience, organizational commitment*

INTRODUCTION

In today's competitive environment brought by globalization, the expectations and wishes of managers and employees have led to the emergence of new approaches in the field of leadership. One of them is digital leadership that provides active use of technology. Digital leaders are people who know technology well and are open to continuous learning, apply digital, reflect on company goals and business results in the most positive way, and combine strategy, culture, communication, technology and data to achieve all these (Eberl & Drews, 2021). It will certainly be digital leaders who lead and drive transformation in the New Digital Age. This understanding, which proceeds with the power of persuasion, attaches importance to continuous communication and dialogue, accepts change, can shape its business strategy accordingly, is fed from an agile, inclusive and egalitarian culture based on cooperation rather than hierarchies, and is accountable in the most transparent way when necessary, will also provide important developments in the field of health care (Lapão, 2020).

Cross - generational work stress puts high-risk employment environments in healthcare organizations and hospitals. This causes decreasing productivity and negative organizational climate. There are X, Y, and Z generations in almost all organizations as in hospitals and

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healthcare organizations. Researches shows that perceived behaviours across generations contribute to misunderstanding and conflict (Kaifi et al., 2012; Paros et al., 2022; Easton & Steyn, 2022). Intergenerational, conflict in the health care context is exacerbated by the promotion of younger nurses to leadership positions, requiring them to oversee senior and more experienced nurses. Because nurses serve in a high dynamic environment due to technology and Industry 4.0. Day by day they need to learn new technology and adapt them to sustain their work quality and the hospital they serve in.

I. Theoretical Background and Literature

Digital leadership theory sees technological learning as part of a social transfer, in which corporate practices are taught to new members through selective reinforcement. For this reason, nursing is a profession that requires manager and leader nurses, student nurses and nurses who have just started their profession, to learn and direct them in hospital environments (Mthiyane & Habedi, 2018). Therefore, nurses new to the profession and student nurses learn high-quality digital nursing skills with the help of supplements such as clinical supervision, post-clinical conferences, and clinical training.

The continuous implementation of technological innovations with digital leadership capabilities (Massaro, 2021) is crucial for the development of many organizations, including those in the healthcare industry, during the COVID-19 pandemic and future health crises (Basile et.al, 2022; Drago et.al, 2021).

As a result of technological innovations in the healthcare industry, robotic medical devices are widely applied to provide many types of medical services, including monitoring patients, performing surgeries, and managing vital functions such as nursing care (Guntur et al., 2019). Nurses with high digital knowledge who will provide these services, manage technology and adapt the changes in technology to health institutions are more needed today. These can be expressed as young and dynamic nurses with digital leadership characteristics. In other words, Generation Z can be defined as a nurse. Constantly and rapidly changing technology reveals sharp differences in knowledge, perception and management between generations. In this context, the aim of this study is to determine the digital leadership perceptions of X, Y, Z generations nurses in the digital age and to examine the relationship between these digital leadership perceptions, implicit resilience and commitment.

1.1. The link between digital leadership, organizational resilience and commitment

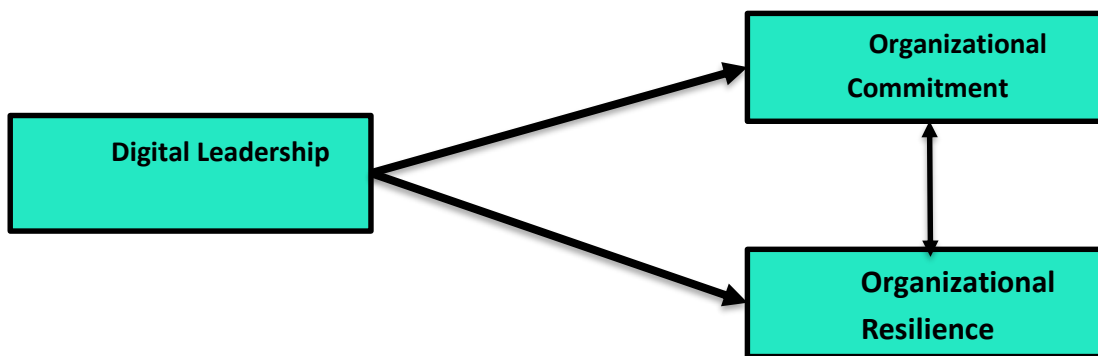
Organizational commitment is defined as the desire of employees to stay in the organization, their identification with all the effectiveness and success of the organization, the loyalty and attitude of the employee to the organization, and the interest shown in order for the organization to be successful (Yiing & Ahmad, 2009). In this context, organizational resilience and agility are important concepts for nurses to serve to adapt to technology and hospital environment. Moreover, despite the intense job stress, this adaptability can only be overcome by highly resilient nurses. The concept of digital leadership is an important variable for nurses' organizational commitment and resilience.

Due to the critical role digital technologies play in patient care, their use in nursing practices is increasing. In general, nurses recognize the significant benefits such

technologies provide for patients and their families. These range from timely assessment information to patient monitoring, family information to nurses' workload and working conditions. For example, digital technologies can offer opportunities to tackle current problems and challenges in the healthcare industry. Many healthcare systems are facing challenges due to the lack of skilled nurses with technology knowledge and the growing demand for long-term care. Because X and Y generations may be insufficient in adapting to this technology, managing it and transferring it to other people. Therefore, generation Z nurses born into the world of technology play a critical role in this process. In this process, having only digital leadership knowledge and behaviors is often not enough. At the same time, nurses' organizational resilience and organizational commitment should be high in order to ensure the sustainability of institutions and hospitals. So which generation of nurse can provide this? X? Y? Or is it Z? This research will have a unique value in answering these questions not explained in the literature and will contribute to the literature by testing the following hypotheses.

1.2. Research Model and Hypotheses

Figure 1. Research Model



Hypotheses

H₁: Digital leadership impacts organizational commitment in healthcare organizations.

H₂: Digital leadership impacts organizational resilience in healthcare organizations.

H₃: Organizational commitment relates with organizational resilience in healthcare organizations.

II. Methodology

II.1. Population and Sample

Data were collected from 136 nurses of Turkish healthcare organizations by three different scales. The questionnaire had 4 sections: the first section was regarding sample characteristics of the participants, such as gender, age, level of education, etc. The second scale was about

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digital leadership developed by Zeike et al. (2019) and adapted to Turkish by Sürücü e al. (2022). It included 6 statements. The third section is about organizational commitment developed by Meyer et al. (1993) and adapted to Turkish by Bağcı & Akbaş (2016). It consisted of 15 statements. The forth scale is organizational agility developed by Sharifi & Zhang (1999) and adapted to Turkish by Akkaya & Tabak (2018). It consisted of 15 statements. The tool for collecting data was chosen to be a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Characteristics of participants are as follows: 77.9% (106) of respondents was female while 22.1% (30) was male. 67.6% (92) of the respondents was graduated from health vocational high school, the rest were graduated from other high schools (32.4%). Moreover, we asked their current education level. 82.4% (112) had bachelor’s degrees, while 17.6% (24) had a master’s or Ph.D. degree. 37.5% (51) participants was Z generation that means they were born between 1996-2015, 40.4% (55) participants was Y generation that means they were born between 1980-1995 while 22.1% (30) participants was X generation that means they were born before 1980s.

II.2. Statistical Analysis

The analysis was executed using structural equation modelling with the SPSS 26 program. Before testing Hypotheses, we checked data normal distribution and reliability analysis. Cronbach Alpha (α) was used to measure internal consistency for reliability and the Skewness and Kurtosis were used to check the data normality distribution. Cronbach Alpha was found higher than 0.70 for each scale that showed the data is high reliable.

The Skewness and Kurtosis values should be between +2 and -2 that presents data has normal distribution (George, 2011). Table 1 presents the skewness and kurtosis has normal distribution. Thus, we applied parametric analysis methods such as regression, ANOVA and correlation in current research.

Table 1. Normal Distribution Analysis (N=136)

| Scale | Min. | Max. | Mean | Std. D. | (α) | Skewness | | Kurtosis | | p value |
|---------------------------|------|------|------|---------|------------|------------|------|------------|------|---------|
| | | | | | | Statistics | SE | Statistics | SE | |
| Digital Leadership | 1.00 | 5.0 | 3.84 | 0.48 | 0.92 | -0.108 | 0.21 | 0.439 | 0.43 | 0.183 |
| Organizational Commitment | 1.00 | 5.00 | 3.16 | 0.86 | 0.93 | 0.719 | 0.21 | 0.906 | 0.43 | 0.256 |
| Organizational Resilience | 1.00 | 5.00 | 3.86 | 0.85 | 0.93 | 0.326 | 0.21 | -0.455 | 0.43 | 0.192 |

III. Results

Characteristics of participants are as follows: the mean of age is 28.4; 40.9% (192) of the respondents were above 28 years, while 59.1% (277) were less than 28 years. 64.4% (302) of respondents were female, 35.6% (167) identified themselves as male. 39.0% (183) had high school degrees, 43.9% (206) had bachelor's degrees, while 17.1% had a master's or Ph.D. degree.

R value showing the positive and significant relationship between digital leadership and organizational commitment is 0.607. It can be stated that 36% (R^2) of organizational commitment depends on digital leadership behaviours. In other words, there is a positive and significant relationship between digital leadership and organizational commitments ($p < 0.001$) (Table 2). Thus, Hypothesis 1 (H_1) is supported (Digital leadership impacts organizational commitment in healthcare organizations).

Table 2 : Model Summary

| Model | Mod el | R | R Square | Adjust ed R Square | Std. Error of Estimate | t value | Change Statistics | | | Sig |
|-------|----------------|-----|-------------|-----------------------|------------------------------|------------|-------------------|---------|---------|-----|
| | | | | | | | F value | df 1 | df 2 | |
| 1 | | ,60 | ,36 | ,364 | ,6891 | 8,83 | 78,11 | 1 | 13 | ,00 |
| | 7 ^a | | 8 | | 5 | 8 | 1 | 4 | 0 | |

a. Predictors: (Constant), Digital Leadership

R value between digital leadership and organizational resilience is 0.607. It can be stated that 61% (R^2) of organizational resilience depends on digital leadership behaviours. In other words, Regression test proved that there is a positive and significant relationship between digital leadership and organizational resilience ($p < 0.001$) (Table 3). Thus, Hypothesis 2 (H_2) is also supported (Digital leadership impacts organizational resilience in healthcare organizations).

Table 3: Model Summary

| Model | Mod el | R | R Square | Adjust ed R Square | Std. Error of Estimate | t value | Change Statistics | | | Sig |
|-------|----------------|-----|-------------|-----------------------|------------------------------|------------|-------------------|---------|---------|-----|
| | | | | | | | F value | df 1 | df 2 | |
| 1 | | ,78 | ,61 | ,607 | ,680 | 14,4 | 209,5 | 1 | 13 | ,00 |
| | 1 ^a | | 0 | | 24 | 75 | 14 | 4 | 0 | |

a. Predictors: (Constant), Digital Leadership

We also applied Pearson correlation to test the relationship between both independent (digital leadership) and dependents variables (organizational commitment and organizational

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resilience). The findings of the study indicate that the digital leadership outcome has a strong positive correlation with organizational resilience ($r=.781$; $p=.000$) and organizational commitment ($r=.607$; $p=.000$). Organizational resilience has a positive correlation with organizational commitments ($r=.345$; $p=.000$). This correlation supports Hypothesis 3 (**H₃**): Organizational commitment correlates with organizational resilience in healthcare organizations.

Table 4. Correlations

| Variables | | Digital Leadership | Organizational Commitment | Organizational Resilience |
|---------------------------|---------------------|--------------------|---------------------------|---------------------------|
| Digital Leadership | Pearson Correlation | 1 | | |
| | Sig. (2-tailed) | | | |
| | N | 136 | | |
| Organizational Commitment | Pearson Correlation | ,607** | 1 | |
| | Sig. (2-tailed) | 0 | | |
| | N | 136 | 136 | |
| Organizational Resilience | Pearson Correlation | ,781** | ,345** | 1 |
| | Sig. (2-tailed) | 0 | 0 | |
| | N | 136 | 136 | 136 |

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

We applied ANOVA Post Hoc test to compare generations (X, Y, Z) perceived digital leadership organizational resilience and organizational commitment.

As seen on Table 5, the model is significant($p=.000$). In other words, digital leadership has a positive and significant impact on the organizational commitment and organizational resilience.

Table 5. ANOVA

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---------------------------|----------------|----------------|-----|-------------|-------|------|
| Organizational Commitment | Between Groups | 63,680 | 44 | 1,447 | 3,554 | ,000 |
| | Within Groups | 37,058 | 91 | ,407 | | |
| | Total | 100,738 | 135 | | | |
| Organizational Resilience | Between Groups | 117,858 | 44 | 2,679 | 5,932 | ,000 |
| | Within Groups | 41,093 | 91 | ,452 | | |
| | Total | 158,951 | 135 | | | |

Post hoc test showed that the digital leadership mean scores were higher in the Z generation than the X generation ($p=0.025$); however, there was no statistically significant difference between "X and Y generation" and "Y and Z generation" ($p>0.05$).

While the mean of organizational resilience scores was higher in the X generation than in the Y generation ($p=0.016$); however, there was no statistically significant difference between "X and Z generation" and "Y and Z generation" ($p>0.05$).

The mean of organizational commitment scores was higher in the X generation than in the Z generation ($p=0.011$); however, there was no statistically significant difference between "X and Y generation" and "Y and Z generation" ($p>0.05$).

Table 5: Multiple Comparisons

Bonferroni

| Dependent Variable | (I) Generation | (J) Generation | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|------------------------------|-------------------|-------------------|-----------------------------|---------------|-------|----------------------------|----------------|
| | | | | | | Lower Bound | Upper Bound |
| Digital Leadership | Y | X | ,168 | ,218 | 1,000 | -,36 | ,70 |
| | | Z | -,524 | ,254 | ,124 | -1,14 | ,09 |
| | Z | Y | ,524 | ,254 | ,124 | -,09 | 1,14 |
| | | X | ,692* | ,258 | ,025 | ,07 | 1,32 |
| | X | Y | -,168 | ,218 | 1,000 | -,70 | ,36 |
| | | Z | -,692* | ,258 | ,025 | -1,32 | -,07 |
| Organizational Resilience | Y | Z | -,111 | ,213 | 1,000 | -,63 | ,40 |
| | | X | -,703* | ,248 | ,016 | -1,31 | -,10 |
| | Z | Y | ,111 | ,213 | 1,000 | -,40 | ,63 |
| | | X | -,592 | ,252 | ,060 | -1,20 | ,02 |
| | X | Y | ,703* | ,248 | ,016 | ,10 | 1,31 |
| | | Z | ,592 | ,252 | ,060 | -,02 | 1,20 |
| Organizational Commitment | Y | Z | ,471 | ,211 | ,082 | -,04 | ,98 |
| | | X | -,267 | ,246 | ,842 | -,86 | ,33 |
| | Z | Y | -,471 | ,211 | ,082 | -,98 | ,04 |
| | | X | -,737* | ,250 | ,011 | -1,34 | -,13 |
| | X | Y | ,267 | ,246 | ,842 | -,33 | ,86 |
| | | Z | ,737* | ,250 | ,011 | ,13 | 1,34 |

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

CONCLUSIONS

One of the most important factors that lead a company or firm to success is to have a successful and digital leader in digital age during Industry 4.0. Although leadership is a concept that is in our lives, digital leadership is a concept that has recently come to the fore and wondered. Digitalization has a positive effect on the individual performance of the personnel

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by increasing the quality of business life, increasing the speed of work of the personnel, completing the tasks on time, reducing the rate of mistakes made in the works and ultimately affecting the motivation of the personnel. The presence of digital leaders in companies in the digitalization process also increases the individual performance of employees (Benitez et al., 2022; Abbasov & Tolay, 2021).

In literature, researches from the perspective of leadership and digitalism is generally related to organizational commitment and resilience in the field of health. For example, the innovative leadership practices are more conducive innovative work behaviour and work performance of the company (Purwonta et al., 2020; Zuraik & Kelly, 2019; Asbari et al., 2019). The more positive the employee's innovation practices are, the better employee's performance and organizational commitment will be. These findings are similar to our research result. And there are some other studies that support the result of current research, for instance, it has been found that transformational and digital leadership styles affect the performance of the organization positively and significantly (Madanchian et al., 2020; Al Khajeh, 2019). The organizational commitment is higher in organizations with digital competence (Yu & Moon, 2021). Cho, et al., (2019) found that transformational leadership increases organizational commitment, Puliwarna et al., (2023) found that digital competence has direct positive and significant effect on organization performance. Hack-Polay et al. (2022) conducted research on guiding flexibility in nursing practice and examined the impact of digital innovations and enhanced emotional education on nursing competencies. They found that nurses could develop more outstanding modern capabilities with exposure to increasingly used technologies in the healthcare sector. AI and digital technology and health-related engineering equipment can help reduce stress in the profession. Therefore, technology is not a threat. It is a necessary complement that can upskill nurses.

Health literacy, in particular, plays an important role in the delivery of health services by nurses. This is closely related to the digital leadership behaviours of nurses. The more effective the digital leadership behaviours are, the higher the sexual health and literacy levels will be. This is also important in the distribution of health services (Üstgörül, 2022). Lapão (2020) emphasized the importance of combining digital health with the leadership of nurses. A positive relationship was observed between transformational leadership and organizational commitment.

In local literature, there are some studies supports the results of current research. Aymaz (2014) found the positive the relationship between the perception of leadership behaviours and organizational commitment of nurses. Yağız (2022), on the other hand, examined the relationship between the behaviours of nurses in the pandemic process and their organizational resilience, and resulted the positive relationship between those variables. Canpolat (2012) evaluated the leadership and organizational commitment of nurses.

As seen in literature, there are different studies in the literature for organizational resilience, digital leadership and organizational commitment. However, the relationship between organizational resilience and organizational commitment, which defines nurses' digital leadership characteristics, has not been studied yet. This provides the originality of current research. For this reason, it is necessary to conduct research on the effects of organizational resilience and organizational commitment for nurses operating and working in

the digital age. Therefore, we examined the relationship between digital leadership, organizational resilience and organizational commitment of the perception of X, Y and Z generation nurses.

The results show that digital leadership has a positive effect on both organizational resilience and organizational commitment. Moreover, organizational resilience and organizational commitment is positively correlated. The young nurses have more digital leadership skills and behaviours comparing senior ones. But The perception of organizational resilience and commitment of the X generation nurses was higher than the Y and Z generations. The results of this study may guide to the managers of healthcare organization to pay attention young nurses in adapting technology and guide to senior nurses through applying digital leadership behaviours.

Study Limitations and Future Research

The sample population at this academic research hospital in Turkey did not represent the national nursing population. Therefore, the study's findings should be not generalized to the population. We reached just 136 nurses and analysed the data with parametric tests and a quantitate method.

For future studies, here are several opportunities for more study on the issue of digital leadership among different generations of nurses. First, a deeper assessment of the linkages between leadership style and organizational commitment in the concept of X, Y and Z generations leadership in nursing would provide data that can help in new and digital leadership development programming. Additional study employing a qualitative or mixed method should be undertaken to understand why digital leadership results in organizational commitment and resilience. Finally, while this study investigated the links between digital leadership and organizational commitment and quiet, it may be applied to a large sample.

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THE MICROCREDIT AS A SHORT-TERMS INSTRUMENT FOR SUSTAINABLE DEVELOPMENT THE NORTH-WEST REGION OF ALBANIA: SHKODRA CASE

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Abstract. *The Sustainable Development Goals are a global call to action to end poverty, protect the Earth's environment and climate, and ensure that people, regardless of location, can enjoy peace and well-being. Recently notice that Albanians tend to move abroad. Recent trend show that Albanians tend to move abroad. This is characteristic especially for the North of Albania. Shkodra region is a northwest part of Albania that is known for its wealth of natural recourses, culture and traditions. It is surrounded by a lake, a sea, and a river; also the people of Shkoder are called "The creedal of arts and knowledge". But the poverty indicators prove the opposite. The poverty in this region is nearly 15 %, and the unemployment level is very high. People tend to leave Shkodra. They have land and professions but they don't have the property legality and cash to exploit these natural resources. To have a sustainable development region, the government needs to take measures to help people to work their lands and to create their company. Interviewing a sample of 200 people in rural areas in Shkodra (borrowers/not borrowers) we notice that microcredit has a short-term impact in increasing their incomes and consequently contributes to reduction of immigration. Before and after is the method used for impact analysis in order to reach the above conclusion.*

Keywords: *Sustainable Development, Shkodra Region, poverty indicator, microcredit impact, immigration.*

INTRODUCTION

The Sustainable Development Goals (SDG) are a global call to action to end poverty, protect the earth's environment and climate, and ensure that people everywhere can enjoy peace and prosperity.

19 UN Agencies are working together to support Albania's achievement of the SDGs, United Nations

Albania (UNA,2022). One of the important objectives of the SDGs is "No poverty" which means "The elimination of poverty in all its forms throughout the world".

Albania has prepared a number of strategies that address development policies in various fields of development, which focus on the socioeconomic improvement of Albania in the years 2021-2030, but based on the current situation of Albania, the urgent need is to reduce inequality between the regions regarding main areas of development, especially in the reduction of poverty. This is and the first objective of SDGs

I. Problem statement

The aim of the article is to study the assessment of the impact of microcredit on socio economic indicator of Shkoder region regarding the reduction of the level of poverty as a first objective of SDG. Access to financial services is crucial for economic development. Microcredit is a development model is a model that has been adopted in many countries of the world to provide loans to the poor who have no or little collateral. Based on the results on our analyses it was noticed the microcredit has an impact on family incomes as well as in improving health.

I.1. Poverty in Albania

The comparison of the risk of being poor for 2021, between Albania and other countries of the Region and the European Union show that: The highest value of relative poverty is recorded in Latvia (23.4%), Romania (22.6%) , Bulgaria (22.1%) followed by Albania (22%). The lowest poverty rates are recorded in the Czech Republic (8.6%), Finland (10.8%), Slovenia (11.7%), Slovakia (12.3%) and Denmark (12.3%). The average of European Union countries (27 countries) is 16.8%, Institute of statistics (IS, 2021)

According to the World Bank, from 2021 to 2023, poverty will decrease by only 1.5 % in total, even less than in the last seven years, which proves "The very slow trajectory that poverty reduction has in Albania".

What is important to emphasize is that the level of poverty, as well as other socioeconomic indicators, are different in different regions. The Shkodra region is one of the regions with the highest poverty indicators, as it is shown in Table 1

Table 1. Poverty indicators by Prefecture, 2012.

| District | Poverty measures | | |
|----------------|------------------|------------|------------|
| | Headcount | Depth | Severity |
| Berat | 12.3 | 2.3 | 0.7 |
| Dibër | 12.7 | 2.3 | 0.7 |
| Durrës | 16.5 | 3.6 | 1.3 |
| Elbasan | 11.3 | 2.3 | 0.7 |
| Fier | 17.1 | 3.4 | 1.0 |
| Gjirokastër | 10.6 | 2.4 | 1.0 |
| Korçë | 12.4 | 2.5 | 0.7 |
| Kukës | 22.5 | 3.8 | 0.9 |
| Lezhë | 18.4 | 4.7 | 1.8 |
| Shkodër | 15.5 | 3.7 | 1.6 |
| Tiranë | 13.9 | 2.7 | 0.8 |
| Vlorë | 11.1 | 2.4 | 0.8 |
| Total | 14.3 | 3.0 | 1.0 |

Source: Living Standart Measurement Survey, LSMS 2012* INSTAT

* After publishing the revised data for population 2001-2014 in May 2014, the data from LSMS 2005, 2008, 2012 are revised.

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The district of Shkodra does not have the highest level of poverty, but what makes us analyse this district is the fact that Shkodra is one of the districts with many natural resources, with an admirable geographical position on the border, with a tradition in education and culture, but regardless of these assets, it is ranked in the high-level poverty districts.

1.2. Shkoder district and natural resources

The district of Shkodra lies in the northern part of Albania, in a territory of 3,562 km², with geographical limits with Montenegro in the north and northwest, with the district of Kukës in the east and with the district of Lezha in the south, while it reaches the Adriatic coast in the west and southwest. The favourable geographical position in terms of cross-border relations enables the economic and territorial connections of Shkodra with Montenegro and Kosovo, turning the city into a strategic point of the district; the climate is Mediterranean, with a mixture of continental and maritime.

In the southeast of Shkodra lies the Rozafa castle, at a height of 130 m above sea level and with an area of 3.6 ha, Shkodër District Council (SDC, 2010). To the north and northeast lays the plain of Mbishkodra, while to the north and northwest is bordered by the Albanian Alps. In the opposite direction, about 30 km southeast of the city, lies Velipoja, a beach on the Adriatic coast. Thus, within 30 km of the city there are a number of natural attractions, ranging from the high mountains of northern Albania to the Mediterranean coast of the Adriatic, from the shores of the largest lake in the Balkans to Rozafa Castle, which stands majestically on a city, where a hundred years ago there was a navigable river that brought foreign ships and passengers to its heart. Shkodra is also one of the cities with a university.

Thanks to the very good natural resources that the Shkodra region possesses and the favourable geographical position, this region has a suitable environment for the development of mountain and sea tourism, the development of agriculture and other economic activities.

1.3. Socio-economic indicators of Shkodra district

The population of Shkoder district has a decreasing trend. If we refer to the statistical data of the internal migration of the population, we will notice that the departures from the county are greater than the incoming flow. Compared to the general data, Shkodra is the fourth district in terms of population migration in the country.

Table 2. Domestic movements by county by Variable, Year and County.

Shkoder district

| Year | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------------|------------|------------|-------------|-------------|------------|------------|------------|------------|
| Incoming flows | 1172 | 1338 | 2239 | 1692 | 1099 | 1682 | 1559 | 1994 |
| Outcoming flows | 1830 | 2277 | 3409 | 2980 | 1559 | 2230 | 2367 | 2666 |
| Difference | 658 | 939 | 1170 | 1288 | 460 | 548 | 808 | 672 |

Source: IS

Referring to the data on GDP or DGP per capita, we note that the trend is in decline. The growth rate of Shkodra GDP in real terms is increased by - 4.6%, being ranked as the eighth district (out of 12 districts) for the contribution to the overall GDP growth.

Table 3. DGP for Shkodër region.

| Indicators in region | Measuring Units | 2015 | 2016 | 2017 | 2018 | 2019 | 2020* |
|---|-----------------|-------|-------|-------|-------|-------|-------|
| Gross Domestic Product, in current prices | Mill. Euro | 554 | 582 | 596 | 655 | 699 | 668 |
| Growth Rate of Regional GDP | % | 1.6 | 3.1 | -1.0 | 3.5 | 2.3 | -4.6 |
| GDP per capita | Euro | 2,616 | 2,784 | 2,888 | 3,214 | 3,471 | 3,363 |

*Evaluation for the year 2020 are based on semi-final estimation of GDP

Also, the official statistics shows that starting from the 2011-2012 school year, there is a decrease in the number of students registered over the years in all the universities of the country, including the University of Shkodra. Specifically, in 2011 there are 158,963 registered students nationwide and 14,538 students registered at the University of Shkodra, which account for about 9.1% of the total number of students registered in all universities of the country. While in 2018, we have 113,277 students' registered nationwide and about 8,245 students at the University of Shkodra, which make up 7% of the total number of students. So, there is a decrease of 28.7% in the total number of students in the country compared to 2011, this also explains the decrease in the number of students at the University of Shkodra.

II. Methodology

Theoretically, a number of econometric techniques are known for impact evaluation, but their use requires appropriateness of data and the fulfilment of certain conditions.

We have considered the "Log-linear model" with an independent variable Dummy most appropriate model regarding to the type and volume of data collected for measuring the impact or effect of microcredit on the socio-economic indicators of families in rural areas, Gillespie, M. W. (1977). The Dummy variable consists of the state of the indicators "Before and after" receiving the microcredit. Dummy variable D (BEFORE-AFTER) takes the value 1 for the state before access to microcredit and the value 0 for the state after access to microcredit in the borrower group. In this way, the coefficient next to the Dummy variable shows the impact of microcredit on the variable of interest, Alba, R. D. (1987). Based on above, the Log-linear model was estimated and the corresponding coefficients were analysed for the assessment of the microcredit effects on each of the socioeconomic indicators considered in this analysis.

Through the analysis of the log linear regression coefficients it will be shown: (i) the impact of microcredit on the level of income in the rural areas of the Shkodër district; (ii) the impact of microcredit on the educational level of the inhabitants; (iii) the impact of microcredit on increasing the level of employment of the residents of the rural areas, McKernan SM (2002); (iv) the impact of Microcredit on improving the living conditions of the residents in the rural areas, Chliova, M., Brinckmann, J., & Rosenbusch, N. (2015).

II.1. Population and Sample

Based on the fact that the study refers to the Shkoder region, then the population will be the borrowers (residents of the rural areas of the Shkoder region). A sample has been chosen which consists of 200 families who are beneficiaries of a loan in one of the microfinance institutions operating in these rural areas. Data were collected before and after receiving the loan through the questionnaire prepared for this purpose.

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II.2. Statistical Analysis

As we mentioned above, the data were collected through questionnaires by interviewing 200 borrowers. The sample consists of 80% men and 20% women. From the data analysis, it appears that approximately 60% of the interviewed borrowers belong to the middle level of education, 35% to the low level, and 5% to the high level of education.

95% of the interviewees are self-employed and 5% are employed in the public sector. Regarding the profession of the respondents, 75% are workers, 15% are veterinarians and 10% are agronomists.

Based on the fact that the impact of microcredit is to be evaluated, data has been collected for the indicators that will be analyzed in two main periods before and after obtaining the loan.

The period of access to microcredit is marked with T. T-3, T-2, T-1 are the periods before access to the microcredit, and T+1, T+2, T+3 are periods after access to microcredit. If there is a difference between the two periods, we will conclude that access to microcredit has an impact on the indicator that is being analyzed.

III. Results

The following table summarizes the results of processing the data collected from the selection of some key socio-economic indicators in two main periods, before and after access to microcredit.

Table 4. Key indicators “before and after” loan in the borrower group.

| Indicators | Unit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|--------|--------|--------|---|--------|--------|--------|--|
| | | Before | | | | | After | | |
| | | T-3 | T-2 | T-1 | T | T+1 | T+2 | T+3 | |
| Income / family / month | (ALL) | 69,550 | 70,012 | 69,813 | | 72,020 | 72,593 | 72,901 | |
| Expenses for education/family/month | (%) | 1.37% | 1.45% | 1.50% | | 1.87% | 1.92% | 1.98% | |
| Expenses for social activities / family / month | (%) | 2.75% | 2.75% | 2.75% | | 2.78% | 2.78% | 2.78% | |
| Average number of hospital visits | (average number of medical visits / family/month) | 2.6 | 2.4 | 2.3 | | 1.95 | 1.8 | 1.75 | |
| Average number of employees | (average number of employees /family/month) | 2.527 | 2.53 | 2.53 | | 2.55 | 2.554 | 2.555 | |
| Expenses for residence reconstruction | (%) | 6.69% | 6.03% | 6.71% | | 11.13% | 11.56% | 11.58% | |

Referring to the above table, it can be seen that all the indicators have an increasing trend,

starting from the period T-3 to the period T+3, exception for the number of visits to the hospital, a variable which has a negative trend. Referring to the data in Table 4, it is observed that the main indicators such as: "Income", "Employment", "Education", "Social activities" and "Living conditions" have a shift in the increasing direction after receiving the loan in comparison with the dynamics of the indicators in the period before receiving the loan. The opposite happens with the "Number of hospital visits", which moves in a decreasing direction after receiving the loan compared to the period before receiving the loan, which is evident due to the improvement of living conditions, the number of health visits is expected to decrease.

III.1. The impact of microcredit on the level of income in the rural areas of the Shkodra district

The following table shows the results of the "Log-linear model", where the independent variable is the Dummy variable itself and the dependent variable is "Income".

Table 5. Income change after access to microcredit.

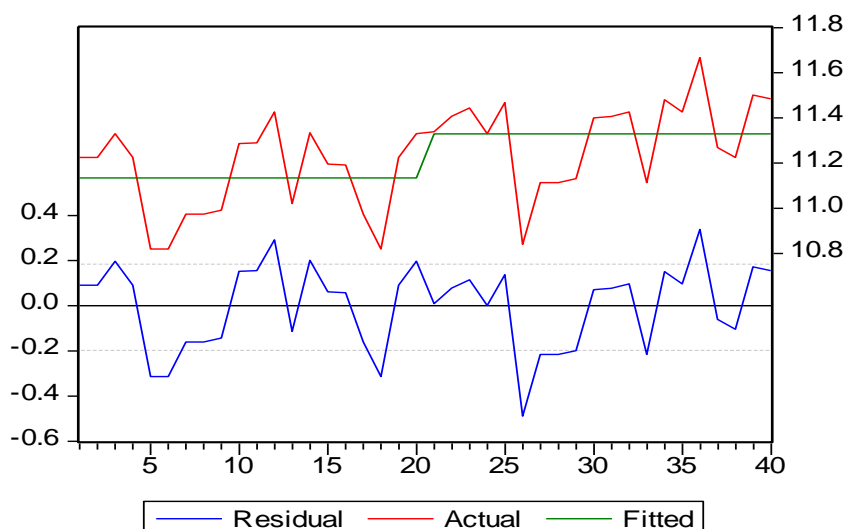
| Dependent Variable: LOG(TR ¹) | | | | |
|---|-------------|-----------------------|-------------|----------|
| Method: Least Squares | | | | |
| Sample: 1 200 | | | | |
| Included observations: 200 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 11.32933 | 0.042750 | 265.0116 | 0.0000 |
| DPARPAS | -0.195406 | 0.060458 | -3.232085 | 0.0025 |
| R-squared | 0.215628 | Mean dependent var | | 11.23162 |
| Adjusted R-squared | 0.194986 | S.D. dependent var | | 0.213085 |
| S.E. of regression | 0.191185 | Akaike info criterion | | - |
| | | | | 0.422442 |
| Sum squared resid | 1.388967 | Schwarz criterion | | - |
| | | | | 0.337998 |
| Log likelihood | 10.44884 | F-statistic | | 10.44637 |
| Durbin-Watson stat | 1.433585 | Prob(F-statistic) | | 0.002541 |

Referring to the data, it is noted that the coefficient near D is negative. This shows that after access to microcredit there is an increase in income by 1.16 percent points. When D has the value 1 (i.e. before access to microcredit), then Log (TR) = 11.33-0.195, while if D = 0, then Log (TR) = 11.33, a fact which shows that the impact of access to microcredit is approximately 1.16 percentage

From the table, it is also observed that the p-value is 0.0025 less than the significance level 0.05, which means that the coefficient is statistically significant. Meanwhile, based on the fact that R2 is around 0.22, it can be said that the model is statistically significant. Referring to the graph, there is a positive shift of the graph (change which is identified with a dashed line) through which the increase in income as a result of access to microcredit is shown.

1 TR = "incomes".

Figure 1. Income's change after access to microcredit.



Referring to the above analysis, at the 5% significance level, there is sufficient evidence to support the statement that microcredit has positive Impact on incomes.

III.2. The impact of microcredit on improving the health care level of residents in the rural areas of Shkodra district

The same methodology as above is used to evaluate the impact of microcredit on improving the health care level. Below we will present the conclusions reached from the analysis. The Dummy variable will be the same access to microcredit and the dependent variable will be the average number of visits to the hospital.

From the processing of data, it can be observed that the the positive coefficient next to Dummy variable (+ 0.498) shows that access to microcredit reduces hospital expenses by 4.98 percent points. The p-value is 0.0060 less than the 0.05 significance level, which means that the coefficient next to the Dummy variable is statistically significant. Meanwhile, based on the fact that R2 is around 0.18, it can be said that the model is statistically relatively significant. In conclusion, we can say that microcredit affects the improvement of the health level.

III.3. The impact of microcredit on increasing the level of employment of residents of rural areas of Shkodra district

The Dummy variable will be the same, access to microcredit and the dependent variable will be the average number of employees.

From the data analysis, we notice that the coefficient next to the dummy variable is - 0.189000. Also from the data table it is observed that the p-value is 0.4267 greater than the 0.05 significance level, which means that the coefficient next to the Dummy variable is not statistically significant. This indicates that with a significance level of 5%, there isn't sufficient evidence to support the statement that microcredit has Impact on the level of employment.

In the same way, it has been shown that microcredit has a positive impact on the improvement of living conditions.

CONCLUSIONS

Microcredit has an important role in reducing poverty and improving the standard of living of families that have had access to microcredit, and therefore it is an instrument that contributes in the short term to sustainable development, Microcredit Summit Campaign (MSC,2009).

Achieving the objectives of sustainable development requires comprehensive planning and a cross-cutting strategy to unite common policies and solve the problems that arise in the horizontal plane. Regardless of the existence of strategies and investment by the government in different areas of the economy, it is necessary to support the vulnerable population at the same time, since the impact of the macro economic regulations reaches this segment of the population later, demoralizing them.

Hubka, Ashley, Zaidi, Rida. (2005) indicate that ““Scaling up” will require increasing the scope (number of individuals reached), impact (effect on the well-being of borrowers), and depth (ability to reach the poorest of the poor) of microfinance. The idea is to make microfinance available not just to the moderate poor at whom it has traditionally been targeted, but also to the extreme poor and the vulnerable non-poor, and to expand the set of microfinancial products offered (CGAP, 2003b)” (p.6)

Referring to the above results, it is noticed that the access in microcredit increases the incomes approximately by 1.16 percent points, that is a good result for poor families. Also reduction of the hospital expenses by 4.98 percent points is another important impact of microcredit. Also Armalda Recic (2021) estimated that “Access to microcredit increases spending on the consumption of essential food products by 2.6 percentage points” (p.98).

But with regard to the problems that Albania has faced recently, immigration, it is necessary for the government to identify financial and political instruments that have an immediate impact in order to prevent the immigration of citizens from Albania. One of these instruments can be considered Exactly "Microcredit".

The creation of microcredit financial institutions in the region of Shkodra specifically for crediting or guaranteeing loans to farmers who invest in agriculture, livestock and the field of agro-processing in accordance with agricultural development policies.

The creation of training and advisory institutions and their financial support from the state, which enable counseling, training and orientation of the residents of rural areas towards appropriate and effective investments within the framework of the use of the resources they have available.

The creation of the necessary advisory and guarantee instruments by the Shkodra local or central institutions, which enable residents to benefit from the EU grants applicable for making investments in the framework of the development of rural areas.

These measures are very important because they create premises for poverty reduction, and economic development of the rural area and consequently limited the abandonment of the country.

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*THE MICROCREDIT AS A SHORT-TERMS INSTRUMENT FOR SUSTAINABLE DEVELOPMENT
THE NORTH-WEST REGION OF ALBANIA: SHKODRA CASE*

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HOW ARE BUSINESSES ADOPTING CIRCULAR PRACTICES – EMPIRICAL STUDY ON THE CASE OF GEORGIA AND SELECTED EASTERN EUROPEAN COUNTRIES

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Abstract. *The shift towards circular practices requires a variety of supportive actions from different parties, such as education from academic institutions, institutional support from government and policymakers, and financial aid. Our research aims to provide data on the adoption of circular practices in Georgia and selected Eastern European countries. The findings of the research summarize the trends of adoption of circular practices among firms in different economies.*

In today's rapidly changing business environment, companies are under increasing pressure to reduce their environmental impact and embrace sustainable practices. Circular economy is seen as a promising solution to these challenges, as it shifts the focus from linear models of production and consumption to a closed-loop system where waste is reduced and resources are conserved.

The concept of circular economy has gained significant traction in recent years, as companies seek to reduce their environmental impact and achieve long-term sustainability. By adopting circular practices, companies can reduce the cost of goods sold, improve resource efficiency, and promote a cleaner environment. However, the adoption of circular practices requires a significant change in organizational culture, which can be challenging for many businesses.

Our research aims to provide practical information for policymakers and stakeholders from the private sector on the adoption of circular practices in Georgia and selected Eastern European countries. The results of the research will provide valuable insights into the trends of adoption of circular practices among firms in different economies and highlight the benefits of embracing circular economy.

In conclusion, the transition to circular practices is a highly sought-after trend for businesses seeking to reduce their cost of goods sold, promote sustainability, and benefit from a cleaner environment. The adoption of circular practices requires a significant change in organizational culture, which can be challenging for many businesses. Our

research aims to provide practical information for policymakers and stakeholders from the private sector on the adoption of circular practices in Georgia and selected Eastern European countries and summarize the trends of adoption of circular practices among firms in different economies.

Keywords: *circular business, circular economy, Georgia, CE business models, EBRD-EIB-WBG enterprises survey.*

INTRODUCTION

In a modern era, scarcity has become a major research dimension for many economists, which is basically linked to the limited resources on the one hand and limitless wants of people on the other. Governments, policymakers, scientists and the businesses are rethinking the traditional paradigm of economics, which is based on a linear approach (take-make-dispose) and should be changed towards the circularity. In this sense, circularity means to redesign operations on various levels, so that processes become more sustainable and eco-friendlier. By managing finite resources, a circular economy promotes a continual positive development cycle that maintains and increases natural capital, optimizes resource yields, and reduces system risks.

Most fundamental incentives for the companies to transform linear business operations to circular ones, still lays in the willingness to reduce negative environmental impacts. On top of that, businesses are seeing the potential fruits of improving resource-usage efficiency, thus reducing cost of goods sold, increasing competitive advantages and easing access to new markets. Also, environmental regulations and institutional incentives provided by policy-makers and governments, especially in developed countries are pushing companies to seek for alternative ways of doing business to reduce emissions and negative impact environment. In some cases, besides restrictions governments are providing subsidies and tax deductions to support circular business models.

Activities from Circular economy, which covers almost all industrial sectors, is increasing in terms of generating new revenues, reducing costs, and encouraging innovation. This growth is driven by shifts in regulation and evolving consumer attitudes.

The topic is getting very actual in Georgian Economic policy too. However, there is a lack of relevant local academic publications and related business statistics. For this reason, the research is using database from EBRD-EIB-WBG survey to calculate and provide detailed numbers on usage of circular practices in Georgian firms and to analyze general trends between other economies in the survey. Furthermore, the research can also dive deeper into exploring the challenges and opportunities that Georgian firms face in implementing circular economy practices, as well as identifying potential gaps in current policies and regulations that may be hindering the development of a circular economy in the country. Additionally, research can investigate on the potential benefits of a circular economy for the country's economy, environment and society, and how it can contribute to achieving sustainable development goals.

Within the framework of the research, one of the factors is the assessment of developed countries with certain indicators, which is an important point for the implementation of additional analysis.

I. Literature Review

It was already mentioned in the introduction that local academic publications related to concept of circular economy are extremely rare in Georgia. However, several authors are discussing the general landscape of establishing circular economy in Georgia (Gubeladze & Pavliashvili, 2020; Pavliashvili, & Prasek, 2020; Jishkariani, et. al.; 2021; Buachidze et. al.; 2021). Additionally, some publications discussing the green economy opportunities from finance industry (Aslanishvili, & Omadze, 2019) or from the perspective of investemnt sector (Verulidze & Miceikienė, 2021).

Another study (Chachkhiani et al., 2022) provides a qualitative and quantitative evaluation of the solid waste management system in Kutaisi, Georgia and the Imereti region. It reveals that share of recyclables is higher in urban areas and commercial centres.

On the other hand, there are plenty of academic publications which analysing circular business models or generally circular practices in firms from Eastern European countries (Malinauskaite et al., 2017; Muizniece et al., 2019), especially discussing challanges for circular business models in Baltic countries (Rizos et al., 2016; Uvarova et al., 2020, Atstja et al., 2021).

Accordingly, the research has focus on international publications which can provides useful insights or methodological notes to explore relevant data to analyse the current state of usage circular practices in local companies in Georgia. The few modern studies have used the green module from EBRD-EIB-WBG Enterprise Surveys to analyze green and circular economy trends in business for selected countries.

A study conducted by Kalantzis et al. (2022) is analyzing green management and green investments of firms and distinguish capital intensive or non-capital-intensive investments. The results are provided on regional level. The paper uses data from EBRD-EIB-WBG Enterprise Surveys to examine the determinants of green investment strategies in firms. It also uses logistic IV regression to analyze the data and finds that financially constrained firms pursue fewer mitigation measures while more climate-aware firms pursue more mitigation measures.

Whether, other publication has focus on levels of green management practices by country (Martin et al. 2022). That research used three different data sets including data set was from the EBRD-EIB-WB Enterprise Surveys, which provided information on firms' credit constraints, green management, and green investments. The purpose of this analysis was to understand the relationship between credit constraints, green management, and green investments and their impact on pollution and greenhouse gas emissions.

Another research is measuring losses from extreme events based on the green module (Benincasa et al. 2022).

The one recent publication used that survey for arguing that green management positively impacts on labor productivity, sales, and innovation (Fernandez, V. 2022). This study also finds that green management practices are influenced by various factors such as peer effects, management quality, customer requirements, and foreign ownership.

However, previous studies did not displaying the specific rates of adoption the different green/circular practices by firms for country level. Additionally, none of them has focus on insights of Georgia which is our priority research example. Furthermore, the literature review is showing that there is a lack of research that is exploring the circular economy from the

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consumer's perspective. Therefore, the current study aims to fill this gap by exploring the sharing economy characteristics from the consumers' perspective in Georgia. The research will underline and understand the current problems to prepare recommendations for the upcoming challenges. The quantitative and qualitative findings from the paper can be source material for future researchers in this field in Georgia.

II. Methodology

The primary source of our research is the database by EBRD-EIB-WBG Enterprise Surveys, which was conducted between 2018 and 2020. This database covers approximately 28,000 enterprises in 41 economies of the European Union, Eastern Europe, Central Asia, and the Middle East and North Africa. These economies include Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Egypt, Estonia, Georgia, Greece, Hungary, Italy, Jordan, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Lebanon, Lithuania, Malta, Moldova, Mongolia, Montenegro, Morocco, North Macedonia, Poland, Portugal, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Tunisia, Turkey, Ukraine, Uzbekistan, and the West Bank and Gaza.

Our research focuses on a special module of the survey, the Green Economy module, which covers basic green management practices and green investments. For the purposes of our research, we have selected 10 questions for further analysis and discussion. These questions (BMGC23A-BMGC23J) are related to a firm's recent experience (over the last 3 years) of adopting circular measures (practices or technologies). The research calculates the share of firms (on a country level) that have adopted these circular measures. It uses weights according to the median eligibility from the Enterprise Surveys database.

The following 10 indicators were calculated according to this methodology: Share of firms that had adopted specific practices over the last three years:

- Heating and Cooling Improvements
- More Climate-Friendly Energy Generation on Site
- Machinery Upgrades
- Energy Management
- Waste Minimization, Recycling, and Waste Management
- Air Pollution Control Measures
- Water Management
- Upgrades of Vehicles, Vessels, and Aircraft in The Fleet
- Improvement of Lighting Systems
- Other Pollution Control Measures

The data for the research was collected from eligible firms, who were asked a set of questions with three possible answers: "Yes," "No," or "Do Not Know." To calculate the value for each question, the sum of the weights of the "Yes" answers was divided by the total weight of all eligible enterprises for that specific question. This provided an overall understanding of the situation, but to gain a more in-depth insight, the research also analyzed the data in a more granular manner by breaking it down into regions and industries, with a focus on Georgia. By doing this, the research was able to provide a more comprehensive picture of the situation in the state, including specific trends and patterns at the regional and industry levels.

Overall, this research provides valuable insights into the adoption of circular measures by companies in a diverse range of economies. By focusing on a specific set of questions related to circular measures, the research is able to provide detailed information on which practices are being adopted most frequently and in which countries. Additionally, the use of weights based on median eligibility ensures that the results accurately reflect the experiences of the surveyed companies.

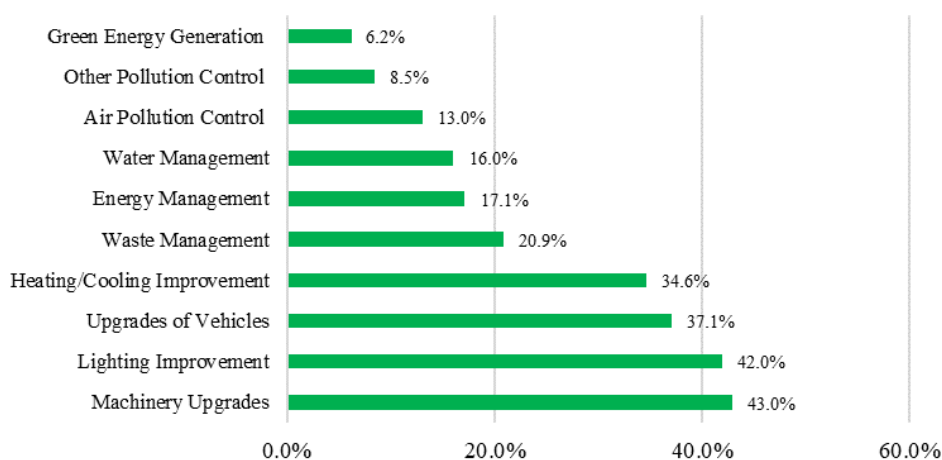
III. Results and Discussion

Figure 1 presents the results of an analysis of the share of enterprises that have implemented selected circular practices in Georgia over the last three years. The data was obtained from the EBRD-EIB-WBG Enterprise Surveys, which were conducted between 2018 and 2020. The survey covered a sample of enterprises in Georgia, and included a special module on green economy practices, from which the data for this analysis was extracted.

The results of the analysis indicate that the highest adoption rates among the selected circular practices were for machinery upgrades (43.0%), improvement of lighting systems (42.0%), and upgrades of vehicles, vessels, and aircraft in the fleet (37.1%). Heating and cooling improvements were also relatively frequent among Georgian enterprises, with an adoption rate of 34.6%. However, practices related to recycling and waste reduction had significantly lower adoption rates, with only 20.9% of firms reporting having implemented these practices.

The data also reveals that the adoption of other circular approaches related to pollution reduction or climate-friendly initiatives was relatively low among Georgian enterprises. Only 13% of firms reported having implemented air pollution control measures, and 8.5% reported having implemented other pollution control measures. Additionally, only 6.2% of firms reported having adopted more climate-friendly energy generation on-site. The adoption of practices related to energy management and water management was also relatively low, with 17.1% and 16.0% of firms reporting having implemented these practices over the last three years, respectively.

Figure 1: Share of firms which adopted specific measure over last 3 years in Georgia



source: Author's own calculations on database of EBRD-EIB-WBG Enterprise Surveys conducted in 2018-2020.

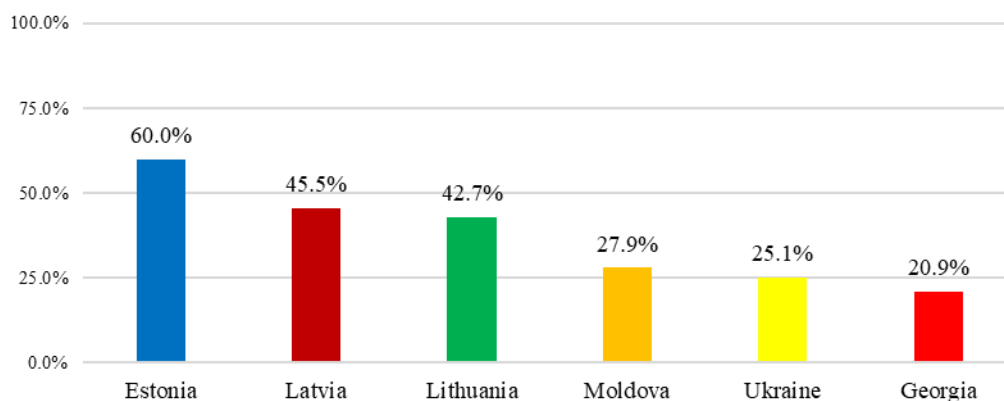
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The results of our research on the adoption of circular practices in Georgia found that the capital city of Tbilisi has a higher share of firms implementing these practices (7.4% vs 9.9%) compared to other regions. Out of the 10 indicators analyzed, Tbilisi had higher adoption rates for 9 of them, with the only exception being "Other Pollution Control Measures". The study also revealed that large-size enterprises (47.25%) were more likely to adopt circular practices compared to medium (29.4%) and small enterprises (19.7%). These findings highlight the importance of creating an enabling environment for circular practices, particularly in regions outside of Tbilisi, to encourage more widespread adoption. Additionally, there is a need to develop support mechanisms for medium and small enterprises to adopt circular practices and contribute to a more sustainable future.

It should be noted that these findings are consistent with the results from the survey of all 41 economies included in the EBRD-EIB-WBG Enterprise Surveys. The highest average indicator among all economies surveyed was for machinery upgrades (41.0%), which is also the most frequent circular practice adopted by Georgian enterprises (43.0%).

Another research finding is that most of the indicators for Georgia are close to the average numbers for all the countries surveyed in the EBRD-EIB-WBG Enterprise Surveys. However, there is a significant gap in the adoption of "Waste Minimization, Recycling and Waste Management" practices, which are adopted by only 20.9% of Georgian enterprises, while this indicator is significantly higher in most of the other countries surveyed (average value 36.0%). This can be seen in Figure 2, which displays the share of firms that have adopted waste management practices for selected Eastern European and Baltic countries. The rate is notably higher in EU countries, and Georgia's score is lower than that of Moldova or Ukraine. It has been also noticed that the rate of waste management in businesses of varying sizes in the state of Georgia is significantly lower in comparison to other regions. This lack of proper waste management practices can have adverse effects on the environment and public health. It is crucial that firms in Georgia make an effort to improve their waste management processes to ensure a cleaner and safer future for all.

Figure 2: Share of firms which adopted waste management measures over last 3 years in selected countries

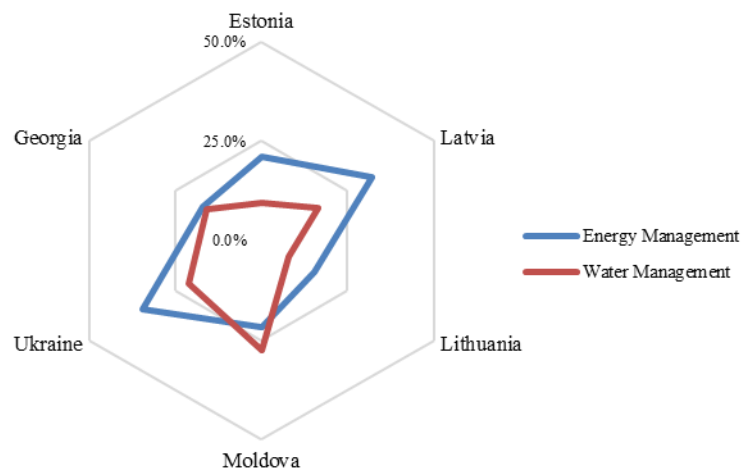


source: Author's own calculations on database of EBRD-EIB-WBG Enterprise Surveys conducted in 2018-2020

Additionally, Georgian enterprises have lower ranks in terms of introducing energy or water management measures. This can be seen in Figure 3, which displays the adoption rates for selected indicators in Eastern European and Baltic countries. Estonia and Latvia are the leaders in terms of average adoption rates for the 10 indicators analyzed. Based on the data provided, it is evident that the Baltic countries, specifically Estonia and Latvia, have higher adoption rates for circular economy practices compared to Georgia. These countries have consistently higher rates in various indicators such as machinery upgrades, waste management, energy management, water management and lighting improvements. For instance, Estonia has an average adoption rate of 69.8% for machinery upgrades, which is significantly higher than Georgia's rate of 43%. This trend can also be observed in other indicators such as green energy generation, where Estonia has an average of 11% and Latvia has an average of 9.7% which is relatively higher than the 6.2% in Georgia.

Overall, the research provides valuable insights into the adoption of circular practices by firms in Georgia and can be used to compare the country's achievements with those of other economies surveyed. It highlights the areas in which enterprises in Georgia have made the most progress in terms of circular adoption, as well as areas where there is room for improvement. Additionally, the findings of this research can inform the development of policies and initiatives aimed at promoting the adoption of circular practices among Georgian enterprises, particularly in smaller and medium-sized enterprises and other regions of the country.

Figure 3: Share of firms which adopted energy or water management measures over last 3 years in selected countries



Source: Author's own calculations on database of EBRD-EIB-WBG Enterprise Surveys conducted in 2018-2020

CONCLUSION AND RECOMMENDATIONS

The adoption of circular practices by enterprises in developing countries, including Georgia, is still relatively low. Despite the recognized potential for circular economy (CE) to promote sustainability and reduce waste, many companies are not yet investing in or considering the implementation of circular approaches in their business operations. The transition to circular business models can be a challenging process, with various obstacles that

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companies of different sizes and industries may face.

One of the most significant obstacles is the lack of financial capability, as implementing circular practices often requires investments in new technologies and equipment. This is particularly challenging for small and medium-sized enterprises (SMEs) that may not have the resources to make these investments. Additionally, economic policies in many developing countries still tend to favor linear business models, providing little incentive for companies to adopt circular practices.

Another obstacle that companies may face is a lack of knowledge about CE business models and the current state of the circular economy. Despite the growing interest in the topic, many companies still lack an understanding of the benefits and potential challenges of implementing circular practices. This lack of knowledge can make it difficult for companies to identify opportunities for circular practices in their operations and to develop effective strategies for their implementation.

In such developed countries, as we identified in the part of the research by the principle of random selection, there are also many challenges in the way of implementing the circular economy, therefore a developing country like Georgia must definitely develop its own way in terms of the development of circular processes.

To overcome these obstacles, it is essential to create and distribute knowledge about CE business models, the current state of the circular economy, and the potential challenges that companies may face. This can be done through various means, such as training and education programs, workshops, and networking events. Additionally, targeted support and funding for SMEs to implement circular practices can help to overcome financial barriers and encourage the adoption of circular practices. Furthermore, the economic policies should be adjusted to support and encourage the implementation of circular economy in the country.

In conclusion, the adoption of circular practices by enterprises in developing countries, including Georgia, is still relatively low. The transition to circular business models can be a challenging process, with various obstacles that companies of different sizes and industries may face. However, by creating and distributing knowledge about CE business models and providing support and funding to overcome financial barriers, we can encourage the adoption of circular practices and promote sustainable and circular economic growth in developing countries. Additionally, economic policies should be adjusted to support and encourage the implementation of circular economy in the country, which will help to overcome the lack of knowledge of the circular economy among companies and promote sustainable business models. Overall, a concerted effort is needed to support the transition to circular economy and promote sustainable business practices in developing countries.

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GLOBAL TRENDS OF MODERN INCLUSIVE ECONOMY

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Abstract. *The purpose of the article is to highlight and work out the global trends of the modern inclusive economy. Methodologically outline the main concepts on which modern inclusive economies are based, taking into account the war in Ukraine, climate challenges, displacement of migration centers. The key point is the development of a model of a successful modern and exclusive economy. Research on building inclusive workplaces, inclusion and entrepreneurship, corporate responses to the refugee and forced migration crisis, delivery of essential services to disadvantaged groups, enriched by diverse practitioners' perspectives. Although the global economy began to rebound in 2021, bringing some improvement in unemployment, recovery remains elusive and fragile. By the end of 2021, global economic recovery had been hampered by new waves of COVID-19 infections, rising inflationary pressures, major supply-chain disruptions, policy uncertainties and persistent labour market challenges. Companies need to ensure that they implement the right sustainable technologies in all of their processes and in every area of their operations in providing the inclusive economy, increasing implementation of the idea of circular economy. In deciding which circular economy actions to prioritise and integrate into climate-focused policies and measures, countries and companies are to be able to compare the relative merits, as well as emissions reductions, of individual circular economy measures.*

Keywords: *inclusive economy, circular economy, emission, waste, virgin material, value chain, pollution, climate*

INTRODUCTION

Recent global upheavals, including the COVID-19 pandemic and the war in Ukraine, together with the various effects of digital transformation, have reinforced the historical legacy of discrimination and inequality. Thus, according to the World Economic Forum's Global Gender Gap Report 2021, another generation of women is forced to wait for gender parity, as the global gender gap widened by one generation, from 100 years to 136 years. Rigid norms and beliefs about sexual orientation, gender identity, and self-expression still challenge social and family acceptance of people around the world. At the same time, according to the World Health Organization, 1.3 billion people - 17% of the world's population - live with a disability. But inclusive economy should be developed with circular economy together. The circular economy is the so-called push factor for the decarbonisation of the economy. This trend is one of the main factor in development idea of inclusive economy. While the transition to renewable energy sources and the implementation of energy efficiency measures can tackle 55% of global emissions, circular economy strategies are required to tackle the remaining 45%.

The necessary relationship between (GHG Emissions/Electric power generation, transmission and distribution) vs (Circular rates) is shown at the level of 9%. In fact, it is very little, but at the same time reflects the real picture. Because based on the circular gap report for 2022, the level of circularity of the economy is 8.6%.

Based on the growing importance of place-based strategic intelligence, Kitagawa and Vidmar (2023) present a conceptual framework for a new methodological approach to influence the shaping of subnational economic development. Although scholarly attention towards inclusive economic development is emergent, its concept and evaluation remain ambiguous since few attempts have been made to elaborate on its definitions and goals (Zhu, 2022). In this study, it is conceptualized and defined inclusive economic development, a productivity perspective for evaluating is proposed, and it construct an inclusive total factor productivity index based on data envelopment analysis. The purpose of the nonlinear relationship between financial inclusion and inclusive economic development in developed economies (Timer & Raza, 2022) is to investigate the nonlinear association between financial inclusion and inclusive economic growth (IEG) in developed economies. A Block of G7 countries (Germany, Japan, Canada, France, Italy, the UK and the US) are considered in this study. Nurazira, Daud and Ahmad (2022) examine the relationship between financial inclusion, digital technology and economic growth. A dynamic panel data analysis examines 84 countries since the GFC period. The results show that there is a positive and significant effect of financial inclusion and digital technology on country economic growth. In addition, digital technology plays a role in complementing the effects of financial inclusion on economic growth, implying that consolidation efforts should take place in improving financial ecosystems via digital technology infrastructure.

The necessity of formally incorporating identity group stratification as a pillar alongside economic and political understandings of any political economy framework demonstrated in work of Chelwa, Hamilton and Green (2022). They made case by juxtaposing mutual inadequacies and myopic limitations associated with two influential but polar political economy frameworks - Marxian and public choice theory-since neither framework formally incorporates an identity group stratification lens beyond class reductionism.

In view of the 2020 global health crisis and its repercussions on the global economy (Niekerk, 2020), the need to redirect conventional economic thinking towards securing global economic sustainability is most critical. The Sustainable Development Goals (SDGs) are a significant move in this direction. However, in the past few years, a clearer understanding of inclusive economics and sustainability indicators have progressed our ability to reduce economic exclusion, chiefly represented by global inequality.

The COVID-19 pandemic has created shockwaves across the globe and impacted businesses and economies. Ghosh, Sigdyal and Khursheed (2022) described enormous disruptive transformations that have happened in the work models and systems to enable businesses to flexibly operate, sustain, and remain agile in uncertain times. The future of work, which seemed uncertain post-pandemic, has reached normalcy due to the organisational resilience and strategic responses shown by organisational leaders and small businesses. Although small businesses across the world have been impacted negatively leading to closures, financial crunches, and job losses worldwide, many have shown signs of resilience and recovery. The chapter throws light on the work transformations across economies and strategic

responses to deal with them. It describes the challenges faced by various small businesses and the way they have been flexible and resilient. The chapter proposes a framework for building an inclusive economy that has been asserted to be the solution to a sustainable and resilient future in times of uncertainties and crises. The Alzhanova, Guzev, Loginova and Polkovnikov (2022) propose an econometric model to analyze the correlation between the indexes that evaluate digital technologies adoption in economic activities and social interactions and the indexes that quantify the attributes of an inclusive economy. Firstly, open-access values were collected for the two groups of indicators, namely, the exogenous indexes measuring the effect of digital technologies on socio-economic systems, and endogenous indexes characterizing the economic development of society. Whether financial inclusion and economic growth can sustainably release poverty alleviation effects in long term has been the focus of academia and government sector (Chen, Zhu, Zhao, Cao and Cai, 2022). This article uses provincial panel data from 2004 to 2019 to examine the dynamic nonlinear connectedness between the financial inclusion, economic growth, income inequality, and poverty alleviation; the main objective is to reveal the direction and intensity of the long-term and short-term impact of each factor on poverty alleviation. By building a panel vector autoregression model (PVAR), the comparison analyses of national, eastern, central, and western sample groups verify the existence of dynamic nonlinear connectedness among the four variables. Inequalities and social exclusion are the consequences of imbalanced economic growth, prompting the World Bank to establish new targets for eradicating extreme poverty and promoting shared prosperity. Ismail, Shah and Rasid (2022) developed those ideas. Surprisingly, the contemporary solution methods are consistent with Shari'ah's objectives. Stressing the importance of balanced growth, this study aims to quantify prosperity sharing in 28 developed and 14 developing nations by reshaping the notion of sustainable development from an Islamic perspective.

I. Methodology

In order to adequately define and evaluate, the authors used statistics from the EUROSTAT database, in particular circular economy indices and gas emissions. At the same time, 27 countries of the European Union were analyzed for the period from 2000 to 2020. Namely we used statistics for such 2 indicators: Recycling rate of municipal waste and Net greenhouse gas emissions. The following scientific methods were used for the analysis and methodological approach: the method of absolute and relative chain transformations, and the method of generalization. The new methodological approach helps to identify the cyclical efforts that can contribute emissions decrease in any sector and highlights the key ways to diminish emissions in the building sector. We offer the author's methodological approach, which we did not meet in the works that were reviewed.

1) Using the method of linear absolute and relative chain transformations, we will show the dynamics of two key indicators: gas emissions and the level of recycling (fig.1);

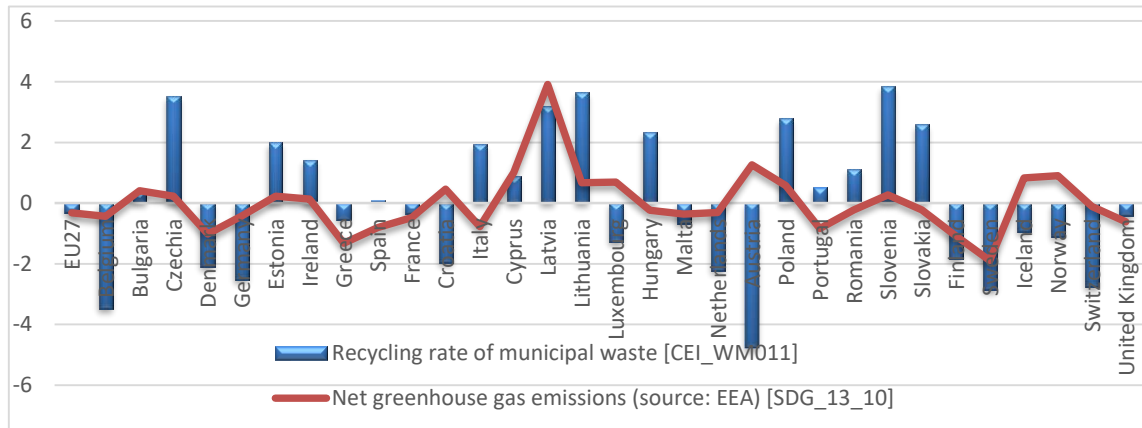
2) Only after point 1, we can distinguish 4 types of strategies, singling out 1 main one (emissions decrease↓ - recycling increases↑) and the top countries characterized by these 4 strategies are selected accordingly (fig.2);

3) On the basis of this, we highlight the so-called Inclusive Decarbonation platforms: stakeholders in those top countries with the most characteristic 'BYPASS' EMISSION HOTSPOTS (table 1).

II. Results

The purpose of the article and research of the authors was to prove the very idea that with the increasing implementation of the idea of circular economy, the functioning of various programs and strategies at different levels, the number of emissions will decrease and it will increase the effect of inclusive economy.

Figure 1. Analysis of circular economy in Europe



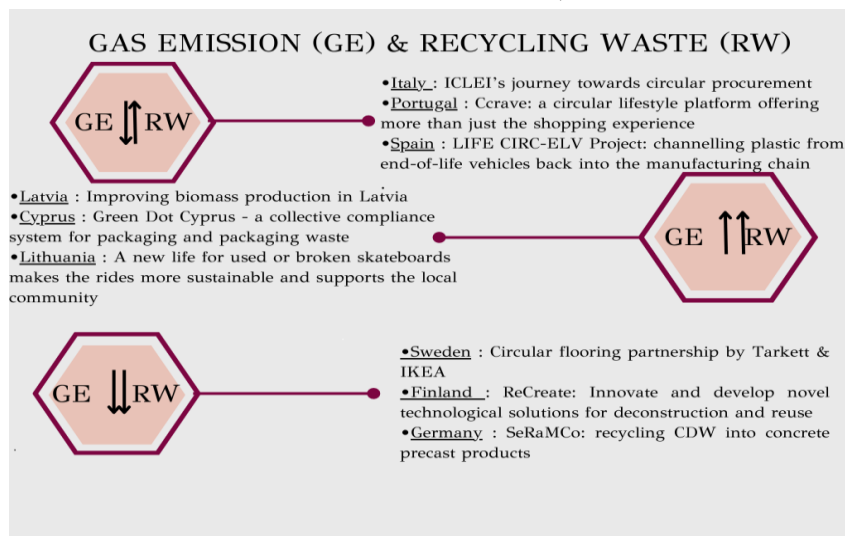
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A larger cycle and more efficient use of materials opens up new opportunities to further reduce greenhouse gas emissions. Therefore, we analyzed European countries according to the Eurostat database and calculated linear absolute and relative chain transformations for two key indicators: emissions and the recycling rate (Figure 1).

After that, they choose the countries in which three strategies are followed (Figure 2):

- 1) gas emissions decrease ↓, and recycling increases ↑
- 2) gas emissions are decreasing ↓, and recycling is decreasing ↓
- 3) gas emissions increase ↑ and recycling increases ↑
- 4) gas emissions increase ↑ and recycling decrease ↓

Figure 2. Linear absolute chain transformations, 2020/2000 + TOP COUNTRY.



Source: made by authors

The new methodology can help to identify which circular economy measures in each sector can make the most promising contribution to reaching the goals of reducing emissions and achieving climate neutrality in Europe and in the end of our idea – to increase effectiveness of inclusive economy. In the building sector, the selected circular economy measures could lead to a reduction of up to 61% of material-related greenhouse gas emissions over the life cycle of buildings.

Greenhouse gas emissions can be reduced by making material flows more efficient and by preserving the utility and value of materials and products for as long as possible. The European Green Deal emphasises the importance of transforming the European economy into a more cyclical one. This strategy is a key element of the European Commission's vision for a climate-neutral economy by 2050 (EC, 2018a). Improving circularity and increasing the efficiency of materials management can take different forms:

- extending the service life of the product
- reduction of material losses
- recycled materials and products
- prevention of downcycling
- replacement of materials with intensive emissions of greenhouse gases with materials with lower emissions.

Table 1. Drivers of the transformational shifts (Decarbonation platforms: stakeholders)

| COUNTRY | INCLUSIVE DECARBONATION PLATFORMS: STAKEHOLDERS (COUNTRY) |
|------------------|--|
| PORTUGAL | Crave is a content and ecommerce platform all in one, with a focus on waste-based and zero-waste products in the home, fashion and lifestyle categories. |
| SPAIN | The LIFE CIRC-ELV project has developed a new process for managing end-of-life vehicles to recover bumpers and fuel tanks, recycle the materials and use them to manufacture pipes and new parts for vehicles. Using this recycled plastic in products from this industry and others will help reduce the carbon footprint by 85%. |
| LATVIA | In Latvia, a project developed by the Ministry of Agriculture (in cooperation with private investment) seeks to improve biomass production in the country's forests. |
| CYPRUS | Green Dot Cyprus is the first collective compliance system for packaging and packaging waste in Cyprus. |
| LITHUANIA | The Lithuanian Commune DIY, a team of skateboarding professionals and enthusiasts, collects old, broken Canadian maple hardwood skateboards that have lost their original purpose and recycles them 100 %. The new products made of skateboards are sustainable, strong and have a new life span which is longer than the one of an average skateboard deck. |
| | Tarkett is pioneering post-use flooring recycling in Europe. It is working with IKEA to transform used Tarkett flooring from the IKEA Kungens |

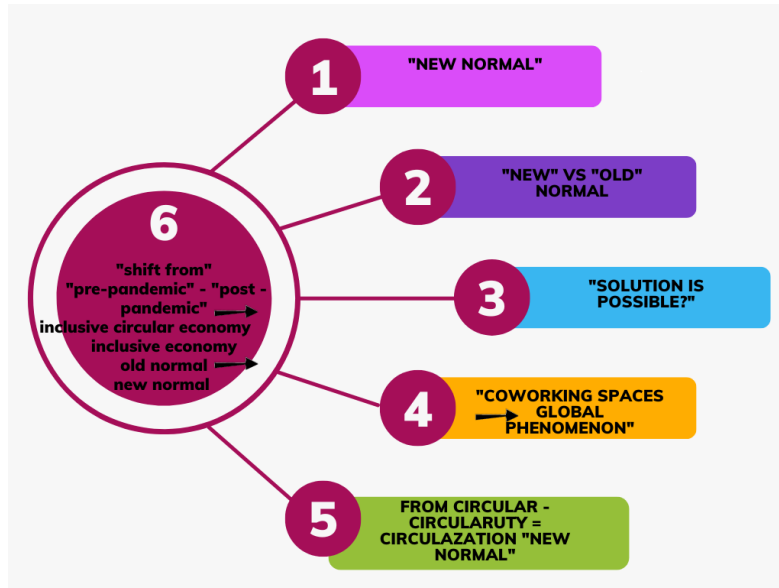
| | |
|----------------|--|
| | Kurva store into new flooring. |
| SWEDEN | ReCreate pushes towards circular construction by investigating the system changes needed in the whole ecosystems of construction and demolition. |
| FINLAND | The Interreg North-West Europe project SeRaMCo (Secondary Raw Material for Concrete Precast Products) focused on researching and promoting the use of secondary raw materials from construction and demolition waste (CDW). |
| GERMANY | ICLEI is a global network working with more than 2 500 local and regional governments committed to driving local action towards a social and ecological transition. In future, whether purchasing services or products such as buildings, furniture and food, local authorities will need to look for increasingly sustainable supplies. |
| ITALY | Crave is a content and ecommerce platform all in one, with a focus on waste-based and zero-waste products in the home, fashion and lifestyle categories. |

Source: made by authors

Nevertheless, when deciding which circular economy actions to prioritise and integrate into climate-focused policies and measures, countries and companies are to be able to compare the relative merits, as well as emissions reductions, of individual circular economy measures. In accordance with the direction of transformations, we consider countries with the so-called top transformational strategies and offer for your consideration those inclusive platforms and stakeholders that, in our opinion, are the drivers of these transformational shifts (Table 1).

There has been a recent acceleration of ambitions on decarbonization, with numerous countries adopting targets to achieve net-zero carbon emissions by the middle of this century. Although the predominant policy approach to decarbonization over the past two decades – the replacement of fossil fuels with renewables in power generation, and improvements in energy use efficiency – has contributed the largest proportions of offsets to CO₂ emissions from economic growth in recent years, there are two reasons why this approach may leave some sectors un-decarbonized in the context of accelerated ambitions. First, there is evidence that direct electrification may not be possible, for technical and/or economic reasons, in ‘hard-to-abate’ sectors outside of electricity generation. Decarbonization in these sectors will require costly rebuilds and retrofits, and the additional costs could render some products uncompetitive on world markets. And second, the predominant approach to decarbonization has disregarded the globalization of trade and supply chains and the spatial dissociation between places of extraction, production, and consumption. In the current ‘linear’ decarbonization model, a sole focus on the reduction of emissions from energy production is likely to be insufficient to achieve net-zero objectives, as emissions would need to decline very rapidly to offset the expansion in economic output, which is not the case at present.

Figure 3. New trends of global inclusive economy



Source: made by authors

So, the main trends and vectors of modern inclusive economy is described in Figure 3.

- Inclusive economy as a new world paradigm;
- Covid-19 – Changing game rules;
- New economic structure (inclusive policies);
- Impact of 5G, 3D, holographic technologies;
- "green" factor;
- Technological factor;
- Social redistribution;
- Social inclusion – *transition of poor people, poor countries into their existence*;
- Social unrest;
- The position of governments regarding;
- "personal philosophy";
- capitalization of investments;
- The latest infrastructure – *the architecture of the digital world in the digital economy at the global level*;
- "green impetus" - a green impulse in a "green" world.

CONCLUSIONS

Inclusive economy and Crises in the world need the regulation of government countries because they have many different resources needed. Governments do the most work during a crisis (financial, pandemic). Global business is changing not only under the influence of the pandemic but as now war. Now one of the crises, which is the background, is an economic crisis (environmental crisis). Such a megatrend as the globalization of all sustainability will be part of how to do business. These are not external events affecting the business. This is part of how we will do business. This is not the "new normal" – we just learn from it. Society is a crucial part of recovery and need the critical role of governments.

Kitagawa and Vidmar (2023) based on the growing importance of place-based strategic intelligence, present a conceptual framework for a new methodological approach to influence the shaping of subnational economic development. We also propose our new methodological approach but in another structure – using circular indicators and present circular economy as inclusive circular economy. Alzhanova, Guzev, Loginova and Polkovnikov (2022) propose an econometric model to analyze the correlation between the indexes that evaluate digital technologies adoption in economic activities and social interactions and the indexes that quantify the attributes of an inclusive economy. I strongly agree but we develop this idea in our article. We used the method of linear absolute and relative chain transformations, we will show the dynamics of two key indicators: gas emissions and the level of recycling.

In 2022, a series of events led to rapid changes in the world economy. The war between Russia and Ukraine, complicated by sanctions imposed by the United States and the European Union, disrupted the recovery process after the global pandemic. The hostilities caused serious upheavals, which, accordingly, led to an increase in commodity prices. This situation further exacerbated inflation caused by the recovery in demand amid supply chain disruptions. Central banks around the world have been forced to tighten financial constraints to reduce inflation. This means that central banks have had to normalize the loose liquidity/monetary policies seen during the pandemic earlier than expected to curb rising inflationary pressures. In 2023, due to uncertainty, the global economic situation will still be difficult due to the emergence of uncertainty.

Global economic growth could potentially be hampered by several lingering risk factors:

- geopolitical tension,
- consistently high inflation,
- rising interest rates and likely a recession.

Inflation and an increase in interest rates led to a decrease in confidence in the prospects of economic growth. The sharp rise in interest rates, especially in the "developed" countries, including the US, UK and European countries, has raised new concerns that the global economy will fall further into recession. Adding to the pressure is the fact that one of the largest economies, China, recorded worse-than-expected economic growth as the country is still following a zero-covid-19 policy that has led to a partial lockdown of the economy. A slowdown in the growth of the world's largest economies will have significant consequences for the global outlook. According to forecasts of the International Monetary Fund, economic growth will decrease from 6.1% in 2021 to 3.2% this year. The economy is projected to slow to 2.9% in 2023.

In 2023, the implementation of innovations and developments in transformative technologies, such as:

- Artificial Intelligence,
- Internet of Things (IoT),
- virtual and augmented reality (VR/AR),
- cloud computing,
- blockchain and high-speed network.
- protocols (5G).

In addition, such transformative digital technologies do not develop in isolation from each other, and in the future the boundaries between them will disappear. New solutions for

advanced operations, hybrid and remote work, business decision-making, and automation of manual, routine, and creative workloads combine these technologies in ways that enhance each other. With this in mind, in the near future we will be able to create "smart enterprises" where systems and processes work together to perform simple and everyday tasks in the most efficient way. To prepare for this, companies need to ensure that they implement the right technologies in all of their processes and in every area of their operations. Today, every entrepreneur should understand how AI and the other technologies mentioned above affect their business and industry. More efficient sales and marketing, better customer service, more efficient supply chains, products and services that are more responsive to customer needs, and optimized manufacturing processes are all out in the open, and in 2023 the barriers to access will be lower.

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SOCIAL RESPONSIBILITY OF BUSINESS AS SUSTAINABLE DEVELOPMENT APPROACH IN MANAGEMENT

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***Abstract.** The feature of the effective functioning of social relations and the condition of sustainable dynamics of the country's development is socially responsible behaviour of business. In times of crisis, socio-economic processes become unstable, social risks increase and deepen. It is important to balance of social processes by reconciling the interests of economic entities and society, social proportions and certain priorities. In this aspect, the problem of social responsibility of business through the creation of a favourable business environment is of particular importance. As a result, it is important to study the process of corporate social responsibility as sustainable development approach in management. The objective of article is methodological research the concept of social responsibility of business, the key elements of its development, the obstacles to its implementation and systematic improvements of its management. It is proved that responsible business supports high rates of economic growth, ensuring career growth for all employees, as a growing business constantly needs to attract new employees. It is justified that the policy of social responsibility of business must be implemented at the level of strategic management in the activities of the marketing, production and sales departments, as well as in the understanding of the strategy and the readiness to implement it in the workplace. It is suggested that in order to increase the social responsibility of business, it is necessary to ensure the reliability of indicators of financial and non-financial (social) reporting and assessment of the effectiveness of socio-economic costs.*

***Keywords:** Business ethics, corporate culture, social responsibility of business, sustainable management*

INTRODUCTION

Structural shifts in the economy create challenges for society. Today, the issues of rational nature use (greening) of industrial productions, reduction of the material intensity of products and stabilization of resource provision of productions are still unresolved. As a result, there is a reduction in the number of enterprises, the environmental condition of industries is deteriorating, which is accompanied by a significant level of environmental pollution, negatively affecting the deterioration of the nation's health. At the business level, the health care crisis has enabled the adoption of corporate social responsibility practices, prompting the adaptation of business strategy, thus contributing to the mitigation of social and environmental problems.

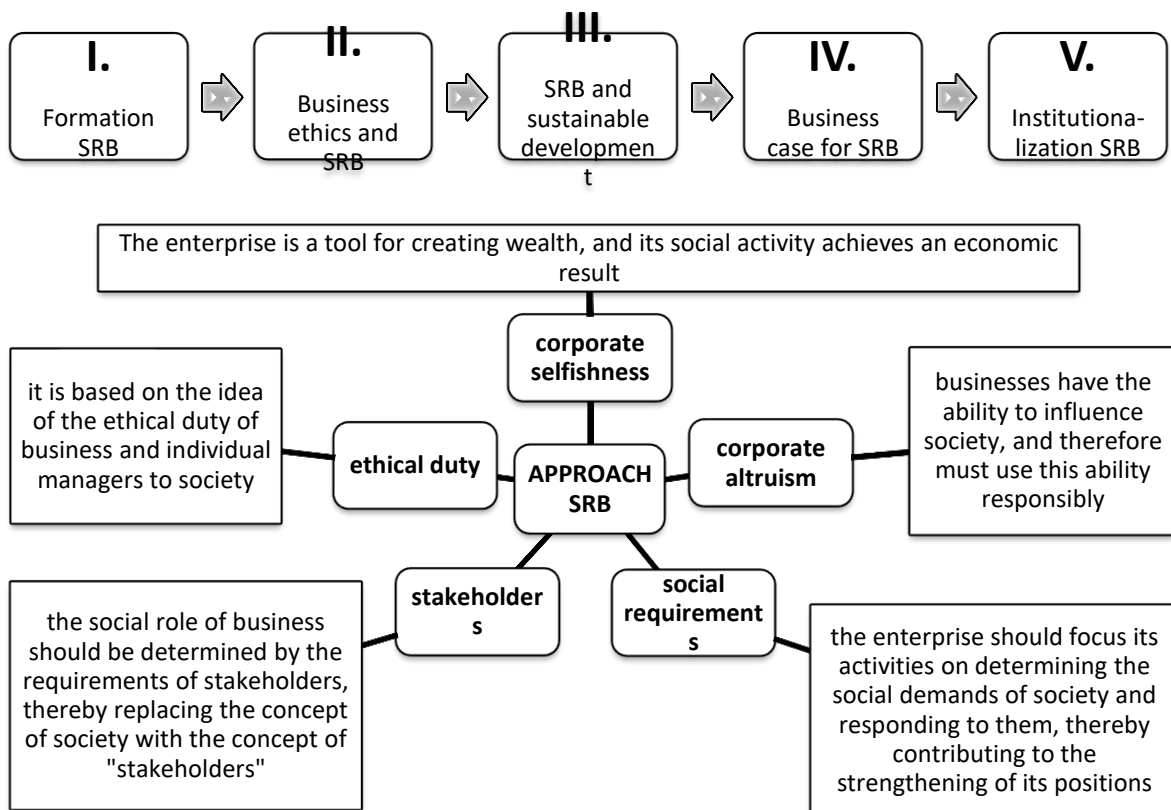
I. Methodology

Concept of social responsibility of business

The concept of social responsibility of business (SRB) appeared at the end of the twentieth century and is at the stage of approval. That is why there is no single approach to its definition, but its essence remains unchanged – business must be socially oriented in relation to its own employees, the state, society, the environment and consumers. In many developed concepts, social responsibility is replaced by other definitions, in particular, such as: “corporate social activity”, “business ethics” (Kroese, 2022).

Social responsibility of business has become part of the management system, has acquired special importance and includes several stages of development (see Fig. 1). The first stage of the formation of SRB (1920-1950) – the main ideologist – H. Bowen (1953, research “Social Responsibility of a Businessman”). According to the author, the social responsibility of a businessman consists in “implementing policies, making decisions or choosing a line of behaviour that would be desirable from the standpoint of society's goals and values”. The same time, P. Drucker (1986, research “Management Practice”) considers public responsibility as one of the eight key factors for achieving business goals. At the second stage of SRB (1970), the word combination of SR and business ethics was introduced, and special attention was focused on volunteering. According to M. Friedman (1970), “social responsibility of business means using one's own resources and involving them in activities aimed at increasing profits, in conditions of open and free competition”. According to A. Carroll (1999), the social responsibility of business is compliance with the economic, legal, ethical and philanthropic expectations presented by the society to the organization in this period.

Figure 1. Stages and approaches of social responsibility of business [Authors].



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The third stage of social responsibility of business was characterized by strengthening its connection with sustainable development (1980). During this period, M. Friedman's stakeholder theory was developed, the organizational structure of business social responsibility management began to be discussed, and the concept of sustainable development (development that meets the needs of the present without limiting the ability of future generations to meet their own needs) appeared. The fourth stage (1990) formed the business case for SRB. At this stage, three motivational reasons for the development of the concept were formed: environmental protection, ecological diversity and stakeholders (Latapi Agudelo et al., 2019). The concept of a triangular balance between economic, social and environmental goals of development appeared. The fifth stage saw the institutionalization of business social responsibility at the national level and the emergence of international standards. In the 21st century a new impetus for SRB development was achieved through the adoption of the ISO 26000 standard, national strategies, state programs on social responsibility and UN directives. As a result, the definition was formed: “social responsibility – company's responsibility for the impact of its decisions and actions on society and the environment through transparent and ethical behaviour that contributes to the well-being of society; takes into account the expectations of interested parties; complies with the legislation” (Zvarych et al., 2022).

Having studied the existing theories, it is possible to distinguish the following types of approaches to the concept of corporate social responsibility of business (Fig. 1). From the point of view of corporate egoism, corporations are instruments of wealth creation, and all social activity is aimed at achieving economic results. In this way, organizations fulfil their economic functions by producing goods and providing services needed by society, while creating jobs and maximizing profits for shareholders. Proponents of this concept emphasize that only in the long-term profit maximization internally determines the real responsibility of the company, since this approach combines the interests of shareholders and other stakeholders (Wickert, 2021). The approach from the point of view of corporate altruism defines the entrepreneurial ability to influence society, and, accordingly, the responsibility to use this ability. The most famous is the concept of “corporate citizenship”, which considers the role of business in the sense of social investments and obligations to local communities (Lindeque et al., 2022).

From the point of view of social requirements, the company should focus its activities on identifying the social requirements of society and responding to them. That is, there was a change from “what is good for society” to “what society requires from business”. The stakeholder approach assumes that, regardless of the type of business or organization, there is a group of people (stakeholders) who influence the company or are influenced by the company, i.e. delegate certain responsibilities. These groups are called “stakeholders” and they include: employees, buyers, shareholders, suppliers, communities, countries and society in general (Seely, 2022). The ethical approach is based on the idea of moral responsibility of business managers and individuals to society. According to Bukreieva (2022), every business has an economic, environmental and social responsibility to society, ensuring its viability. So, the social responsibility of business is a system of consistent economic, environmental and social measures of the company, implemented on the basis of constant interaction with stakeholders and aimed at reducing non-financial risks, long-term image improvement and ensuring the profitability and sustainable development of the enterprise (Clendaniel, 2022).

II. Results

II.1. Key elements of entrepreneurship development

Analysing business activities, it is worth noting that socially responsible companies attach special importance to the training of their professionals, devoting approximately 10% of their own resources to this. Companies also lobby for the teaching of specialized subjects in higher education institutions, both for master's and postgraduate studies, as well as in business schools, provide sponsorship and award the best projects of the final year at universities. Sustainable development involves reducing inequality, and corporate social responsibility includes an anti-discrimination policy aimed at avoiding any discrimination or inequality based on race, gender, sexual identity, sexual orientation, age, religion or belief, disability, marital status, pregnancy or maternity. The company's anti-discrimination policy includes: cooperation agreements aimed at promoting social and labour inclusion of people with disabilities in the normal working environment; participation in the training program on labour inclusion of young people with certain disabilities; charity sports events for social integration of people with disabilities (Bukreieva & Denysenko, 2022).

The key elements of entrepreneurship development are innovation and industry specialization: investment in business capacity, research and development; financing of analytical research and creation of databases; digital transformation and development of artificial intelligence; exchange of knowledge, participation in specialized forums; participation in industry associations. In addition, socially responsible companies have a corporate culture that assumes equal opportunities and gender equality, without any discrimination, as a basic principle. That is why companies are constantly taking measures aimed at equality between women and men in such key areas as access to work, job stability, pay, regardless of the legal system in the country. Responsible business supports high rates of economic growth, ensuring career growth for all employees, as a growing business constantly needs to attract new employees (young graduates) (Boiko, 2022).

The main points of such obligations include: creation of quality employment; cooperation agreements with schools that give high school students the opportunity to get their first experience working in a business environment; cooperation with universities and business associations – seminars and courses on entrepreneurship; participation in programs that promote innovation and entrepreneurship, fosters critical thinking, problem solving, teaching children and youth certain skills; support for microfinancing, facilitating access to credit and financing for the most disadvantaged groups in society; sponsorship of family entrepreneurship and family business programs (Tuxbury, 2022).

II.2. Obstacles to implementation of social responsibility of business

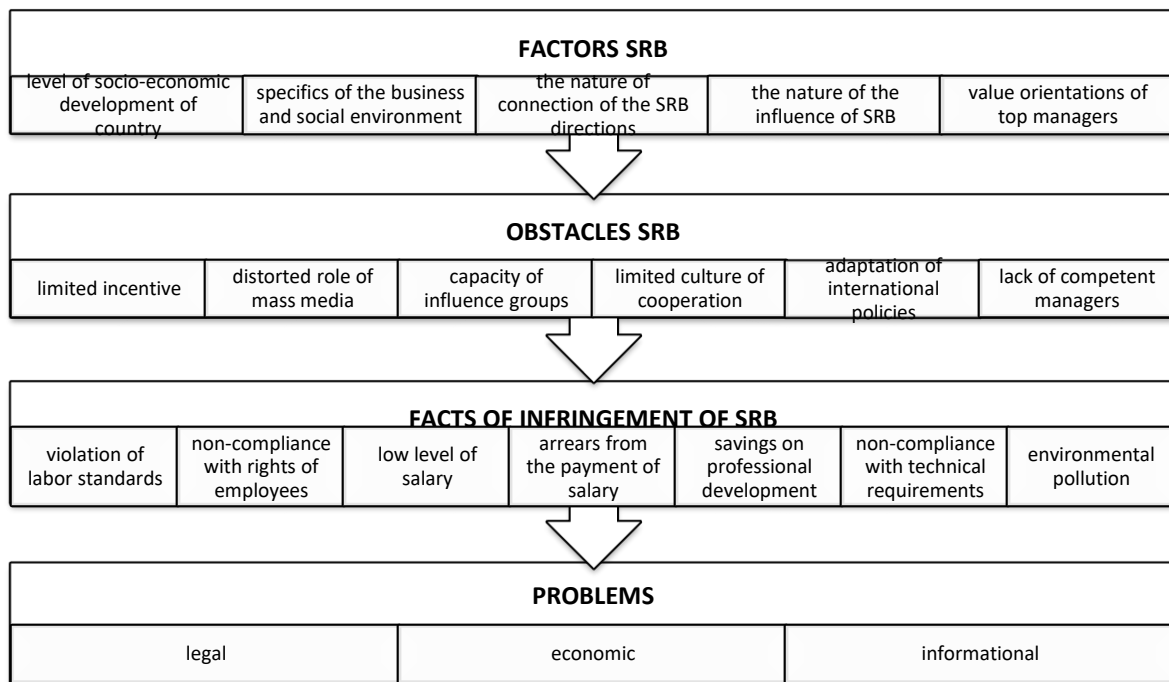
Many factors influence the possibility and scale of corporate policy regarding the social responsibility of business, namely (Fig. 2): the level of socio-economic development of the country; the quality of the institutional environment; specifics of the business and social business environment (international business integration, company size, law and order, level of income, consumer protection, level of competition; pandemic; war); differentiation of areas of social responsibility of business; the nature of the impact of social responsibility on financial and economic results in the short- and long-term periods; value orientations of company owners and top managers (Greenaway, 2022). The problems and obstacles of social responsibility of

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business include its limited promotion and practical application, in particular (Fig. 2): employers violate international norms of human and labour rights; non-compliance with social-legal and labour rights; low wages; salary arrears; insignificant investments in labour protection, health of employees and professional development (Stern, 2022).

In addition, it is worth noting the lack of a sufficient number of interested and competent managers, because the policy of social responsibility of business must be implemented at the level of strategic management in the activities of the marketing, production and sales departments, as well as in the understanding of the strategy and the readiness to implement it in the workplace. In addition, there are problems such as low product quality, failure to meet technical production requirements, environmental pollution and unfair competition. Also, lack of financial resources, inconsistency of criteria for assessing corporate social responsibility; low level of corporate culture; legal nihilism; and lobbying interests (Kurland et al., 2022).

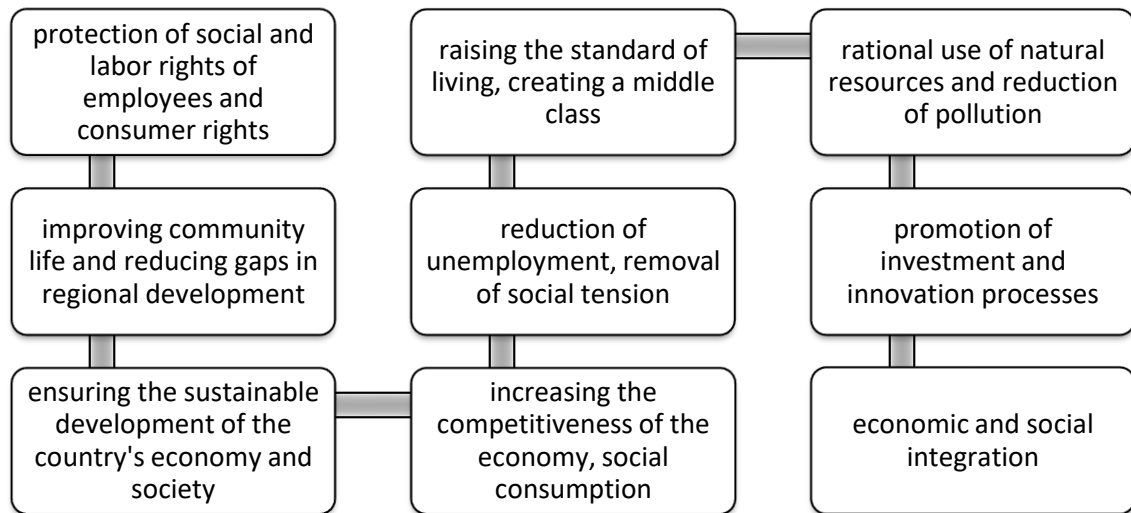
Figure 2. The problems and obstacles to implementation of social responsibility of business [Authors].



II.3. Systematic improvement the social responsibility management

Regarding the macroeconomic environment in which companies operate during the crisis, it is worth noting that more sustainable growth in markets requires complex and interconnected actions at the national and regulatory levels. To adjust the growth rates, it is necessary to improve corporate governance. The structure of economy can be segmented to accelerate growth by improving corporate governance using a two-step algorithm. Prospects for the development of social responsibility projects in developing markets require a national mechanism to promote the systematic improvement of social responsibility of business entities (Fig. 3).

Figure 3. Mechanism of systematic improvement the social responsibility of business entities [Authors].



Also, the social responsibility of business is closely interconnected with social consumption. Socially responsible consumers consider the social consequences of their consumption and use their purchasing power to incorporate social change into the company (Gilles, 2021). In this sense, it is a conscious choice of consumption based on moral and personal beliefs. It is conceptualizing the consumer as the responsible person who, based on the purchase of a certain product or service, minimizes or eliminates harm to society, thus maximizing positive impact in the long term (Zvarych et al., 2022). Ethical consumer behaviour, on the other hand, refers to their choice of one company and one or another product based on political, religious, environmental or social motives, as well as considering labour issues when shopping. In this case, in order to increase the SRB, it is necessary to: create a system for obtaining reliable and timely information about the social, economic and public impact of companies; ensuring the reliability of indicators of financial and non-financial (social) reporting and assessment of the effectiveness of socio-economic costs; financial support of the social package through the social security plan of the organization's employees (an integral part of the event organization plan) (Zvarych et al., 2022).

CONCLUSIONS

Global crises have encouraged companies to increasingly include social and environmental aspects in their business activities. This was largely driven by government regulations and is a potential source of competitive advantage for companies. In addition to government pressure, coercion has been another catalyst for the adoption of corporate social responsibility practices. Actions focused on environmental outcomes have become central to sustainable development, as the adoption of such practices drives corporate development as well as investment. The debate between interest groups and shareholders has intensified in recent years as regulatory and enforcement pressures on companies have led to the inclusion of sustainable indicators such as ESG (environmental, social and governance indicators), which include aspects of related to climate change, pollution, working conditions. The components that make up social responsibility have been disrupted by the pandemic, which has greatly affected the global economy due to the policies put in place to stop the spread of the virus.

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Environmental performance during the pandemic and war in Ukraine prompts a decline in proactive environmental action, as these issues are central to the world (Zvorych et al., 2022). Responsible business supports high rates of economic growth, ensuring career growth for all employees, as a growing business constantly needs to attract new employees: creation of quality employment; cooperation with universities and business associations; support for microfinancing; sponsorship of family entrepreneurship. The obstacles of social responsibility of business include: violation by employers the international norms of human and labour rights; non-compliance with social-legal and labour rights; low wages; salary arrears; insignificant investments in labour protection, health of employees and professional development. The prospects for the development of social responsibility projects require a national mechanism to promote the systematic improvement of social responsibility of business entities. Also, socially responsible consumers consider the social consequences of their consumption and use their purchasing power to incorporate social change into the company. Future research in this direction should be directed to the problems of sustainable business development in the conditions of war, as well as to the areas of manifestation of the implementation of social responsibility of business in the post-war period.

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