Klaipėdos universitetas

# SOCIAL INNOVATIONS FOR SUSTAINABLE REGIONAL DEVELOPMENT

ABSTRACTS of REPORTS

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## ABSTRACTS of REPORTS

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# SECTION
# NEW TRENDS IN ECONOMICS

## CORPORATE DIGITAL IDENTITY: BALANCING SUSTAINABILITY METRICS AND EMPLOYEE SATISFACTION

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**Summary**

The rise of digital technology has reshaped how organisations operate, leading to corporate digital identity as a critical aspect in understanding a company's presence in the digital landscape and heavily influencing the perception of customers, employees, and stakeholders. Additionally, organisations must consider sustainability a crucial aspect of their corporate strategy. Integrating sustainability metrics into the corporate digital identity is essential in fostering transparency, trust, and engagement with stakeholders, including customers, employees, and investors. In this context, organisations must balance sustainability metrics with employee satisfaction to ensure long-term growth and competitiveness. This paper aims to formulate the problem of achieving this balance, examining potential challenges, and proposing research questions for further investigation. The research methodology comprised a two-layer approach. First, a comprehensive bibliometric analysis was undertaken, encompassing 2018 and 2022. Subsequently, the study's second phase entailed surveying a global software enterprise with operations spanning over 70 countries, with particular emphasis placed on its activities within the Romanian market.

**Keywords:** sustainability; corporate digital identity; employee satisfaction
**J.E.L. codes:** G30, G32, F65

### Introduction

Corporate identity plays a vital role in shaping an organisation's reputation, customer engagement, and overall success. As digital technology advances, it becomes increasingly essential for businesses to actively manage their digital identities and effectively leverage them to achieve their goals.

The challenge lies in finding an optimal balance between sustainability performance and employee satisfaction within corporate digital identity. The stigma against sustainable solutions being unprofitable has been challenged by the observed improvement in various metrics, such as increased profits, lower fuel costs, accessibility, and reduced commuting time. Organisations must maintain a positive digital presence, aligning their sustainability goals with the needs and preferences of their employees.

As sustainability and employee satisfaction emerge as key drivers of long-term success, striking the right balance between these factors within corporate digital identity is challenging. This study aims to investigate the problem of achieving the balance between sustainability metrics and employee satisfaction as they relate to corporate digital identity, addressing potential obstacles and formulating research questions to guide future inquiry.

The research methodology encompassed a dual-faceted strategy. First, a systematic review of the relevant literature was conducted using VOS viewer software. Secondly, we employed a qualitative approach and surveyed employees from a multinational computer software company operating in 70 countries, focusing on its operations in Romania, serving an international clientele. We considered employees from various

departments and levels of hierarchy. The inquiry covered investment in employee training, degree of digitisation, personnel growth, skill adaptation, and digitalisation practices. The survey results were correlated with company-reported figures.

The study concluded with the formulation of policy recommendations based on the findings, considering the impact of digital transformation on financial sustainability in terms of absolute growth rate, ESG performance, risk-return profile for the owners, an adequate level of risk exposure, and the impact of business matrix changes during the pandemic period. The study emphasised the importance of digital transformation, artificial intelligence (AI), cybersecurity, reducing carbon emissions, company sustainability, cloud migration, and customer experience. Digital transformation transforms traditional and non-digital business processes and services and creates new ones or completely alters how businesses are managed and operated.

**Theoretical background**

Ribeiro-Navarrete et al. (2021) emphasise the importance of top management possessing both experience and a solid background to drive the company towards high performance across all areas of operation. The authors study the positive impact of new technologies on both employers and business performance, highlighting the practical transition to digitalisation that is taking place in companies. Similarly, Truant et al. (2021) provide an overview of digitalisation from the perspective of Italian listed companies and examine its impact on company performance.

Alieva and Powell (2022) published a scholarly article examining employee behaviours. The article concludes that employees of companies in Sweden and Norway strongly believe digital transformation positively affects job satisfaction. However, the authors also indicate that there is room for improvement in terms of customer involvement and satisfaction assessment. The authors raise a critical issue concerning the significance of employee education and propose that companies should have a unified objective regarding digitalisation processes. Furthermore, they advocate for a decentralised approach to financial responsibility, where all employees, not just managers or departments, assume accountability.

Rachinger et al. (2018) discuss the influence of digitisation on business as an innovation model, emphasising the automotive sector and media industry. The authors ask the respondents to evaluate the digital transformation acceleration in different sectors due to the COVID-19 pandemic. The results show that Technology, Finance, and Retail are the top three sectors with the highest digital transformation acceleration, while the automotive sector needs further improvement.

Finally, Niehoff (2022) discusses sustainability in the new digitisation process, highlighting that the current digitisation vision centred on business can lead to unsustainable models that can damage sustainable development objectives in the medium and long term. The authors ask the respondents to evaluate the impact of business metrics changes during the pandemic period (COVID-19) in terms of funding of digital/ tech initiatives/R&D, variable costs reduction, fixed costs reduction, physical footprint, company general performance, employee productivity boost, improved satisfaction, and a total number of full-time equivalents.

By reviewing recent scientific literature, the authors identified several theoretical concepts related to digitisation and financial sustainability, including digitisation, financial performance, corporate social responsibility, sustainable development, and stakeholder theory. These concepts are linked to corporate governance (including ethics) and employment.

**Methodology**

The study was conducted in two stages, first, by performing a bibliometric analysis for 2018-2022, and second by conducting a case study of a multinational computer software company operating in 70 countries, focusing on its activities in Romania.

The bibliometric analysis was performed by conducting a literature review in the Web of Science – Core Collection database, which generated over 5900 articles. The search criteria included keywords such as "sustainability", "digitalisation facts", "company digitalisation", "ratio", and "employment", and were further filtered based on the criteria such as document type, degree of accessibility, open access year, and research fields. The articles were sourced from scientific web browsers such as Elsevier, Willey Journals, Emerald Group Publishing, Taylor & Francis, Scopus, Springer Nature, Science Direct, Saga, and MDPI as Oxford University Press and KODISA.

The case study involved surveying a multinational computer software company operating in 70 countries, focusing on its activities in Romania. The survey covered all departments and elicited information

about employee wages, trends in digital technologies adopted by the company, the evolution of staff numbers, the adaptation of skills, and investments in employee training and management practices in digitalisation.

**Results**

The bibliometric analysis provides an analysis of the publication trends in the field of digitisation and sustainability, with a focus on scientific articles that are open access. The dataset comprises 5976 published papers, with an increasing trend from 2018 to 2021, from 875 to 1579 papers, respectively. The authors observe that this trend highlights the growing interest in publishing research related to digitisation and sustainability, which leads to the creation of new horizons in economic research.

The countries with the most published articles are England, Germany, Italy, and Spain, with most of the works written in English. The authors use VOS viewer software to create maps of the identified articles, which show the correlation and frequency of keywords used by the authors. The most frequently used keywords include performance, risk, model, impact, market, determinants, information, business, employment, entrepreneurship, firms, growth, and innovation.

In the second part of the study, a survey was conducted in August 2022 to analyse the alignment between company financial performance, perception of digitalisation efforts on employment, and firm top management. The questionnaire was anonymous, and with the consent of the participants, 55% of the respondents replied, with 67.3% being female and 32.7% being male. The study concludes that the respondents' services are provided to clients from different sectors of activity, with a large majority (92.7%) stating no difficulties in using digital tools in a work scenario.

The findings of our study reveal that the female response rate was 67.3%. A significant proportion, 78.2%, of the respondents have been with their company for up to ten years. Among the participants, 40% supervise between 4-400 subordinates. Half of the respondents have experienced at least one job role change within the organisation during the past 3-5 years. Additionally, 25.5% perceive themselves as highly efficient at work, and 32.7% express high satisfaction in their current job role. Furthermore, 41.8% believe they have excellent relationships with their colleagues.

Regarding digital tools, 92.7% of the participants reported no difficulties using them. 96.4% of respondents are receptive to automation and willing to take on new tasks and responsibilities. Nearly half, 49.1%, rate their organisation's digital transformation as very good. The employees embrace workplace well-being and have become an integral part of the company culture. Although not all employees consider digitisation beneficial, most comprehend and accept the changes required to evolve in the workplace.

**Conclusion**

This study has revealed the importance of balancing sustainability metrics and employee satisfaction within corporate digital identity. Achieving this balance is crucial for organisations to ensure long-term success, enhance stakeholder trust, and maintain a robust digital presence. The analysis has underscored the need for a comprehensive approach that integrates sustainability objectives with employee-centric initiatives while effectively leveraging digital channels for communication and engagement.

Organisations should create a clear and consistent digital identity that reflects their core values, sustainability goals, and employee engagement initiatives. This strategy should involve all stakeholders, including employees, customers, and investors. The trends show that companies incorporate sustainability metrics into their decision-making and performance measurement systems. This enables organisations to track their progress towards achieving sustainability goals and make informed decisions that positively impact their triple bottom line (social/governance, environmental, and financial performance).

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# EDUCATION LEVEL INFLUENCE ON INCOME AS IMPORTANT ASPECT IN QUALITY OF LIFE IN LATVIA

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**Summary.** One of the most important aspects influencing the quality of life is education. In the paper are included research results on analysis the factors, how the level of education affects the quality of life, development of different initiatives and values in scientific literature with more detailed analysis of data from Latvia taking into account income level and satisfaction of life. Research methods applied: scientific findings analysis, analysis of time-series on several indicator development related to different education indicators, and income indicators depending from education level with calculation of income confidence interval with probability 0,95 for households with different education levels. Data used in research: data of databases of Official Statistics Portal of Republic of Latvia, Household Finance and Consumption Survey. Research results indicate that in Latvia households with higher education have significantly higher income than for households with primary or no education.

**Keywords:** *Life quality, education, welfare.*
**JEL codes:** I2, I3

## Introduction

The most important desires of a person are concentrated in the desire for factors of vital importance to him (welfare, safety, sustainability), which in detail can be listed several closely related aspects: awareness, education, ability to create and use new ideas, employment, material well-being, protection of the surrounding environment, material and use of energy resources, infrastructure services, balanced regional development, human resources, health, social security; housing, family, social cohesion; increasing the level of democracy, growing level of rule of law, physical security, privacy, modernization of public administration, citizen-friendly public administration services, external relations, openness; participation in processes, importance of self, stability of growth, use of free time and opportunities, culture and so on. If one of the factors changes or, on the contrary, does not change, the increase in the quality-of-life indicator may be limited.

Quality of life is a concept which aims to capture the well-being, whether of a population or individual, regarding both positive and negative elements within the entirety of their existence at a specific point in time Four domains common to Quality of life in health have been defined as: physical health, mental health, social health and functional health. Some primary indicators of quality of life include income and job, housing, education, life-work balance, interpersonal relationships, infrastructure and services, and access to cultural and leisure activities.

Society is aging in Latvia, a fifth of the population is of retirement age. Therefore, the education of the youth plays an important role in improving the quality of life.

Education is one of the most important indicators in this group of factors. If a higher level of education is obtained, there are greater opportunities to raise the level of the other criteria. A good education greatly increases the chance of finding a well-paid job and increasing income to ensure a good quality of life. Highly educated people are less affected by unemployment trends, usually because educational attainment makes a person more attractive to the workforce through greater knowledge. Lifetime earnings also increase with each level of education obtained. Education plays an essential role in providing the knowledge, skills and competences needed to participate effectively in society and the economy. In addition, higher levels of education can improve people's lives in areas such as health, civic participation, political interest, and happiness. Studies show that educated people live longer, participate more actively in politics and the society they live in, and rely less on social assistance.

Education in this abstract will be analysed as a whole, starting from the school level to the higher education level. At the beginning of 2021, a quarter or 24.7% of the employed had a master's degree, while 12.7% had a bachelor's degree, 3.1% had a college education, and 0.7% had a doctoral degree. The majority of employed people (37.5%) had general or professional secondary education, while 14% received vocational

or vocational education after secondary education, primary school education – 6.9%, primary school education – 0.4% of employees aged 25 and over (OSP, 2023).

**Aim** of the research: investigate development of time-series of different aspects in people education in Latvia and influence on their quality of life.

**Tasks:**

1) analyse theoretical findings on role of education in different fields of human life and influence on quality of life;

2) analyse time-series of different education level indicators in Latvia and influence on different aspects on quality of life;

3) investigate differences in income level depending from education level of household representatives.

**Research methods applied**: scientific publication analysis and time-series analysis, calculation of confidence intervals for household income with different education levels.

Data used in the current research: data of OECD, data of databases of Official Statistics of Republic of Latvia and Household Finance and Consumption Survey data.

**Theoretical background**

Researchers world-wide have stressed big importance on education level on income level of the people with better and higher education are more competitive on labour market (Dziembala 2020: 337) and are able to reach more goals in their life and support of the competitiveness of the respective institution. Returns to education and occupation are investigated by Canadian researchers (Fan, et al 2017: 739) where is confirmed significant influence of education level on smart decision making for inhabitant's life. Education has important influence on food selection patterns (Burzig, Herrmann 2012: 1387) and respective influence on health conditions and quality of life. Researchers (Mahdzan, et al 2020: 289; Biekša, et al 2022: 7; Šimanskienė, et al. 2022: 192; Paužuolienė, et al. 2022: 9) have confirmed with their research results very significant influence of education level on financial well-being and influencing their quality of life and attitude to their work (Kara, et al. 2012: 164). Education level is important to choose more healthy food selection and by this influence quality of life (Mazenda, et al 2022: 282; Reula, et al. 2021:63) towards better living and selection of values (Yung, et al. 2015: 92) and influencing their everyday well-being. Greek researchers have confirmed role of education in selection of natural products (Fotopoulos, Krystallis 2002: 745) for their purchases. Researchers (Kelley-Gillespie, et al. 2012: 164) have found that better educated people are more positive to different initiatives of different society groups, including neighbor helping initiatives. Healthy living and green initiatives are on research agenda (Singhal, Malik (2021: 524; Pan, et al. 2019: 329) with concluding remarks that education level is on importance in choosing more healthy products and follow green way of living. Social and cultural aspects as well as education level is on importance for selection of products for consumption (Rosa-Díaz 2004: 417; Ramírez, et al. 2022: 281) and ensuring better quality of life and better satisfaction with their work (Gunlu, et al. 2010: 708). Better educated people can support development of smart cities (Chen, Chan 2023: 281) to provide more comfortable living conditions and atmosphere in their cities.

**Methodology**

Analyzing the available official statistical data and academic research, to find out the influence of the level of education on income as an important aspect of the quality of life in Latvia.

**Results**

It is positive that the number of young people aged 18 to 24 who left education and training prematurely is decreasing. This means that young people have understood the importance of education. It is a good indicator that the number is decreasing both in cities and in rural areas, where the opportunities to get an education are less.

The data analysis show that the number of people who have already received education in adulthood has increased. It is a good trend that people who did not want to study when they were young understand the importance of education in their adulthood and want to get it. Therefore, the possibilities of lifelong learning programs launched in the country can be well evaluated.

Children's pursuit of education is mostly determined by how educated the child's parents are. The higher the level of education of the parents, the more chances that the children will also want to invest in their education and also raise their standard of living accordingly, possibly even higher than that of their parents. If the children's parents have a lower level of education, it is likely that the children will not pursue education

either. Their standard of living is mostly satisfactory because their basic needs are met and there are no visible examples in their circle of acquaintances that a higher level of education will bring improvements in their lives.

The level of education obtained by parents is an important factor that affects the future socio-economic situation of their children, which can be explained by the ability of parents to financially support their children's studies and also to create children's understanding of the importance of education in their future life.

If at the time when persons were 14 years old, their parents had primary education or less, only 14.1% of the population already in adulthood (25-59 years) have higher education, 68.6% have secondary education and 17.3%, similar to parents have primary school education or lower.

On the other hand, 62.8% of children whose parents had a higher education have also obtained it during their lifetime, 34.8% have obtained secondary education and only 2.4% have primary school education or lower.

If children at the age of 14 had parents with higher education, only 9.8% of them in adulthood belong to the poorest income group, and 36.0% to the richest. On the other hand, among those whose parents had primary education or lower, 27.0% belong to the poorest group and only 11.7% to the wealthiest. Approximately a quarter (28.5%) of children of less educated parents live below the poverty risk threshold when growing up, in contrast to only 9.3% of children of more educated parents.

Parents' level of education is also related to the current employment status of their adult children. Currently, 73.2% of children of less educated parents are employed, and 83.3% of children of more educated parents are employed.

Data analysis indicate that the number of children aged 0 to 17 whose parents have no school education, lower than primary school education or primary school education is decreasing. It is evaluated positively, and it also refers to the previous analysis on the increase in education in these groups. Unfortunately, the number of children between the ages of 0 and 17 whose parents have higher education is decreasing. This is probably related to the economic situation in the country and the reduction of budget-financed education.

Data analysis indicate that the confidence interval with probability 0,95 of average income in households with tertiary education in 2020 was between 26,0 and 33,0 thousand EUR, but for households with primary or no education was between 7,9 and 13,7 thousand EUR and half of the population in this group had less than 5,4 thousand EUR per year and half of the population had more than 5,4 thousand EUR per year (indicated by median). In households with primary or no education group differences of income are smaller than in household with tertiary education group (characterized by standard error of arithmetic mean).

**Conclusions**

Academic researchers have found detailed aspects of factors important for quality of life, decision-making and initiatives for different changes influenced by education level of people.

Education level is influencing many important aspects of people’s lives including attitude to consumption, healthy environment and attitude to work and well-being.

Households with higher education level have much higher income in comparison with lower educated part of society.

The skills required in the labor market are becoming more and more knowledge-based. This change in demand has made the existence of a primary or secondary education the minimum criterion to find a job.

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# GROWTH DRIVERS IN THE EU COUNTRIES – A NETWORK ANALYSIS APPROACH

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**Summary**

This research aims to obtain an overview of the connections between different levels of economic growth and some of its potential determinants for the case of the EU-27 member states from 2000 to 2020. In this regard, we started from the idea of letting the data "speak for itself" and built an explanatory framework, rather than starting from an existing theoretical growth model. All numeric data was transformed into categorical data (qualitative approach), after which we performed Network Analysis. We computed five different community detection algorithms (i.e., Louvain, Walktrap, Spinglass, Leading-Eigen and Edge-Betweenness) with the purpose of highlighting the clusters of tightly linked characteristics. The results are robust, as in both communities extracted (by all methods), the three most important characteristics are referring to GDP, governance quality and human capital.

**Keywords:** qualitative approach; network analysis; economic growth; the EU.
**JEL codes:** C45; O47; O52.

## Introduction

Over the years, the subject of economic growth and its most relevant impact factors have been discussed and studied by loads of researchers, scholars, and policymakers. Bearing in mind that economic growth is a precondition for economic development, both these topics need to be thoroughly analysed further so that countries of the world manage to obtain an overall economic welfare.

The main predictors for growth and prosperity can be grouped into two categories: *(i)* standard economic factors, such as physical capital (Solow, 1956), human capital accumulation (Diebolt & Hippe, 2022), and technological change (Pradhan et al., 2020); and *(ii)* non-standard variables, such as institutional and policy quality (Jordaan & Dima, 2020; Ashraf, Luo & Khan, 2022). There are symbiotic and bidirectional relationships between all these factors, and therefore, we cannot refer to them as context-free but operating together. In this regard, states need to discover the best methods to fructify their strengths and correct those aspects that are not good enough in order to achieve wealth and better living standards.

## Theoretical background

Throughout the years, different approaches to economic growth have arisen. On the way to fostering growth and development, one required part is that countries have high-quality governance (Dima et al., 2017) through both adequate institutional and policy frameworks (Dima & Dima, 2016). Therefore, good governance is one of the main facets in enhancing growth (Mahran, 2023) by stimulating R&D expenditures, innovation, entrepreneurial activities, infrastructure development, or the mobility of the workforce (Dima, Lobonț & Moldovan, 2016).

In addition to the government's support, human capital accumulation serves as a driver for achieving a long-term flourishing economy (as different endogenous growth models emphasise). Therefore, countries should continuously invest in people's education and skills (Diebolt & Hippe, 2022) through *(i)* inclusive and equitable quality education and *(ii)* lifelong learning opportunities. We live in a knowledge-based economy, where the workforce with high cognitive skills positively influences aggregate productivity, knowledge transfers, innovation and economic output.

Moreover, technological change represents another paramount channel in obtaining economic growth in a nation. In this vein, a primordial point in propelling economic progress is to build vibrant innovation and entrepreneurial ecosystems (Pradhan et al., 2020; Tu & Akhter, 2022). These aspects will stimulate public financial support for R&D and further create greater opportunities for breakthroughs in products and processes.

In a nutshell, the quality of growth from a state is influenced by many aspects such as governance quality, talented and educated labour force, and technological and scientific progress, all of which intermingle and impact each other (therefore, flourishing interactions ought to be maintained).

## Methodology

The purpose of this study is to obtain an overview of the connections between different levels of economic growth (proxied by GDP per capita) and some of its potential determinants for the case of the EU-

27 member states from 2000 to 2020. Therefore, in the first place, we collected numerical data for the following aspects:

- GDP per capita (PPP, constant 2017 international $);
- Foreign PhD students (% of all doctoral students);
- Human capital index (calculating the contributions of health and education to worker productivity);
- Global social mobility (capturing the extent to which all the people in a society have fair opportunities to accomplish their potential);
- R&D expenditures in all sectors (% of GDP);
- Aggregate (global) governance quality indicator constructed with Principal Component Analysis (PCA) from the following six variables (i) voice and accountability, (ii) political stability and absence of violence/terrorism, (iii) government effectiveness, (iv) regulatory quality, (v) rule of law and (vi) control of corruption;
- Inequality of income distribution (income quintile share ratio).

To achieve our goal, we started from the idea of letting the data "speak for itself" (Benzécri, 1973) and building an explanatory framework for the considered variables rather than starting from an existing theoretical growth model. Therefore, the second step consisted in the transformation of all numerical data into categorical data (qualitative approach). In this manner, for each indicator, depending on its value, the number is replaced with one of the following features: high/ medium/ low level. Furthermore, we performed Network Analysis with the obtained features (characteristics). In this regard, we computed five community detection algorithms (i.e., Louvain, Walktrap, Spinglass, Leading-Eigen and Edge-Betweenness) intending to extract (highlight) clusters of tightly linked characteristics.

**Results**

The algorithms Louvain, Walktrap, Spinglass and Leading Eigen identified (extracted) two communities, while Edge Betweenness detected one community and nine isolated nodes. All in all, the Walktrap method generates the most justified clustering of the evaluated indicators' characteristics (Figure 1). Therefore, it detects one community with both high and medium levels of analysed indicators and one community with "textbook" results, which displays associations only between low levels.

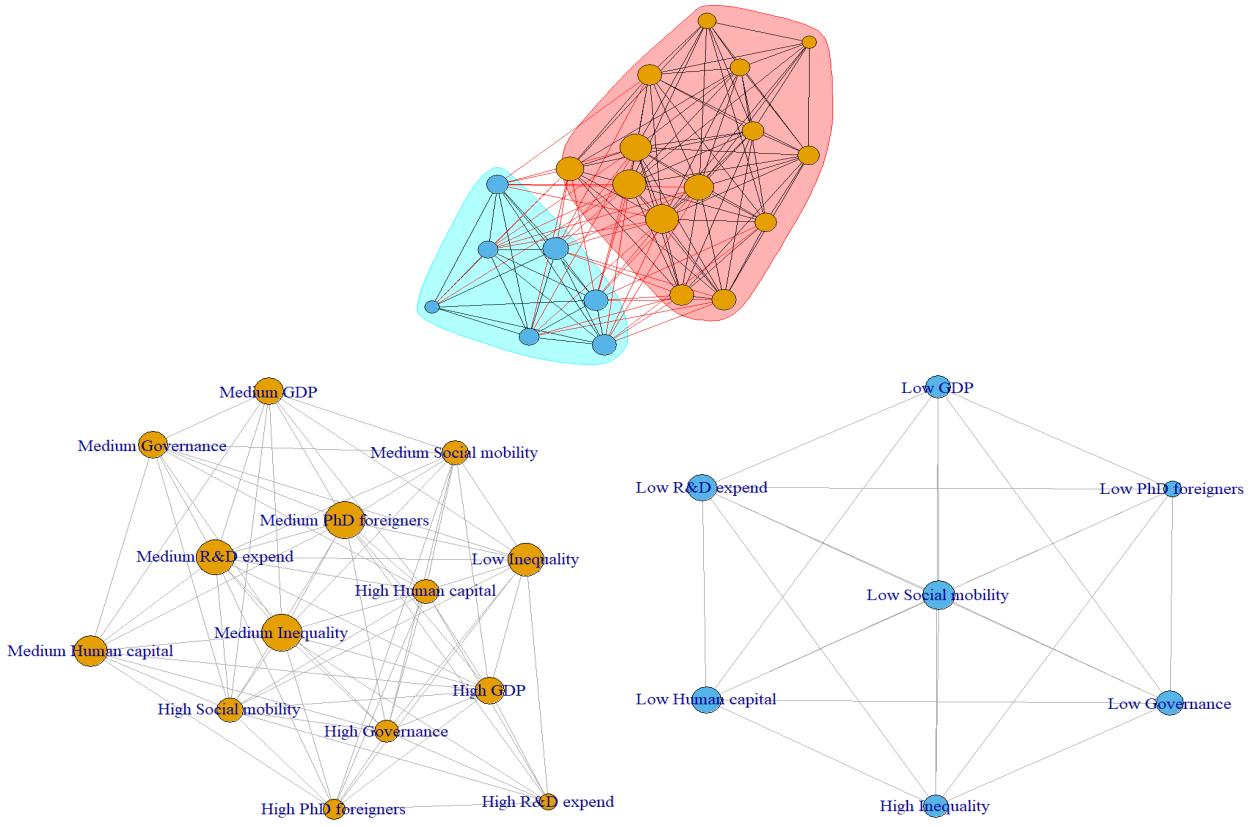


**Figure 1.** Communities' detection - Walktrap algorithm
*Source*: computation in R

The results emphasise that the states with a low level of GDP are the same nations with scarce financial investments in R&D fields, low endowments of human capital/ PhD foreigners, people do not have high opportunities to accomplish their potential, the government performs poorly, and face high levels of income inequalities. At the opposite pole, in the first community, high and medium cases are connected, being emphasised that some states may have some indicators framed as high level and others as a medium (while some things are already good enough, others still must be improved).

Last but not least, evaluating the three most important characteristics in each community, we observe that both extracted communities reveal GDP, governance quality and human capital endowment as top relevant features from all aspects analysed (Table 1).

**Table 1. Three most important characteristics in each community**

| Community | 1st | 2nd | 3rd |
|---|---|---|---|
| 1 | High level of GDP | High level of Governance | High level of Human capital |
| 2 | Low level of Governance | Low level of GDP | Low level of PhD foreigners |

*Source*: computation in R

To conclude, we started from the numerical data and obtained robust results, consistent with the existing theoretical frameworks regarding economic growth.

## Conclusion

Through the political and institutional frameworks in place, government plays a primary role in improving innovation processes that support sustainable economic growth (Dima et al., 2016; Dima & Dima, 2018). In this vein, to acquire technological progress and, implicitly, economic development, political decision-makers should support and achieve the product and process innovation and investments in R&D and humans (i.e., in education, health, and well-being). All these aspects are in a direct relationship, influencing each other. In this research, we intended to study the feedback relationship between GDP per capita (a proxy for growth) and six of its potential determinants by applying Network Analysis for the EU-27 countries between 2000 and 2020. The results are robust for all community detection algorithms and emphasise two extracted communities, one in which we have strong connections between high and medium levels of the evaluated variables and another in which we have links between low (and medium) levels. Moreover, among the EU countries, it is a certain degree of heterogeneity, for example, in terms of growth, innovation capabilities, human capital endowment, and governance quality. Therefore, there is no perfect receipt for gaining overall welfare, instead, the states need to evaluate the local conditions and find the best solutions for growth gaining in accordance with the specificities of their regions.

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# SECTION
# PUBLIC HEALTH AND INTERDISCIPLINARY RESEARCH

## EXPRESSION, MANAGEMENT AND PREVENTION OF STRESS EXPERIENCED AT WORK BY HEALTHCARE SPECIALISTS: ŠIAULIAI CITY CASE

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**Summary.**
In modern society, stress at work is a problem particularly difficult to control. Healthcare specialists are the ones who most often encounter professional stress due to the nature, intensity and load of work. The research has been conducted in order to identify the expression of stress at work and to reveal the measures of management and prevention of stress experienced at work. The results disclosed that there are both individual and organizational factors, that affect the stress in work environment. For example, work relations with authorities or colleagues, workload and scheduling, organizational culture (leadership, manifestation of mobbing, etc.), salary and others. The imbalance of stress level leads to stress related illnesses i.e. burnout. The following most essential prevention measures have been distinguished: involvement of employees in decision making, annual interviews with authorities, educational seminars and trainings, assurance of safe work environment and elimination of manifestations of mobbing. It appeared that organisations do not have enough knowledge about the development models of management of stress at work and internal policy of organisation's stress management, therefore, this encourages to look for the measures that could help to change the situation.

**Keywords:** healthcare specialists, stress at work, development of stress management, prevention of stress at work.
**JEL code (s)** I11

### Introduction

Quality healthcare – one of the most important and relevant topics in today's society. In order to ensure quality healthcare, it is important that specialists providing this service would have a calling for this work, would be healthy, rested, would not feel tension and stress at work. During recent years, stress has become the main challenge that many healthcare specialists encounter. It becomes an endemic problem of healthcare that contributes to the challenges related to health which reduce efficiency and productivity (Ofei, Paarima, Barnes and Kwashie, 2020). Professional stress in modern society is distinguished as a serious global phenomenon that has significant consequences on health and economy in both developed and developing countries. Stress at work is usually defined as a gradual process when individual, cognitive assessment of professional stressors causes adverse health consequences (Fortes, Tian and Huebner, 2020). In reality, professional stress and burnout determine low quality healthcare services and this may have impact upon unfavourable prognosis of patients (Mengist et al., 2021). Stress at work is related to low job satisfaction, reduced productivity and increased work-related accidents (Etim, Bassey, Ndep, Iyam and Nwikekii, 2015). The greatest problem is that medical staff constantly improve their qualification, learn a lot, expand their knowledge in the field of patient care but often forget that they have to learn not only how to protect others but also how to protect themselves. Therefore, in order to reduce stress of healthcare specialists and to preserve proper quality of healthcare, it is important to analyse the expression, causes and prevention of work-related stress. The research aims to investigate the expression of stress experienced at work by healthcare specialists and to substantiate the measures of management and prevention of work-related stress using the research results.

### Theoretical background

Referring to Šatrauskaitė, Tamulienė and Mačiulienė (2014), stress at work is the whole of emotional, cognitive, behavioural and physiological reactions to unpleasant and harmful aspects of work content, organisation and work environment. In addition, stress at work is explained as mental and physical reactions when work needs do not correspond to employee's abilities, skills or requirements (Sohail and Rehman, 2015). However, according to Jackson et al. (2007, qtd. in Lian and Lian Tam, 2017), stress at work can be considered as any negative, tense or difficult situation encountered in professional environment. Professional stress is also known as a manifold process that includes pressure, psychophysiological anguish, control, dissatisfaction with work, depression, anxiety, despair and suicidal thoughts (Iliceto et al., 2013). Due to negative impact of stress

at work upon a person and surrounding environment, for many years various researchers have been paying much attention to theoretical models of stress at work, their impact and importance. According to Lihuan (2021), two main theories explaining the processes that link psychological and social pressure with poor physical well-being of healthcare specialists are distinguished: Karasek's (1979) *Job Demand, Control, Support Model* and the other widely used model of work-related stress is *Effort-Reward Imbalance Model* (Siegrist). In the literature, some authors (Pezaro, 2018; Rudolphi, 2020; Borkowska and Czerw, 2022; George, 2012; Lihuan, 2021; Van Vianen, 2018) mention other models: *transactional theoretical model of work-related stress, theoretical person-environment model, professional stress model, job demands-resources model*. In the literature, more theoretical models of work-related stress can be found: *vitamin model, emotional reset model, model of justice theory, cognitive behavioural theory model* and many other. However, nowadays the most popular theories in the world are Job Demand, Control, Support Model and Effort-Reward Model (Borkowska and Czerw, 2022; George, 2012; Lihuan, 2021).

Having analysed opinions of various authors, it is obvious that at present the most important and the most demanding stressors for healthcare specialists are as follows: COVID-19 pandemic, other contagious diseases, poor work environment and work relations, workload, patients' deaths, violence, new work place, lack of time, deadlines, work conditions, development of professional career, injuries at work.

Stress at work may influence physical and emotional welfare of healthcare specialists because it reduces their efficiency and negatively affects their quality of life (Koinis et al., 2015). Frequently experienced stress causes long-term and short-term disabilities of person's systems and activates the defence system of central nervous system. The impact of stress upon person's health usually depends upon stress type and individual characteristics (Han, Kim and Shim, 2012). Referring to the research, persons who often experience stress will be more likely to experience burnout syndrome in comparison to those who do not feel stress (Ezenwaji et al., 2019). Healthcare sector very often encounters problems of stress-caused burnout and job dissatisfaction (Goncalves, Fontes, Simaes and Gomes, 2018; Coplan et al., 2018).

Since the combination of organisational changes and stress management is one of the most useful ways to avoid stress, the organisation as well as the employees should apply strategies that help to cope with stress. Organisations should apply the workload according to the employee's abilities and clearly define the responsibilities. It is important to assign meaningful tasks that would motivate to reveal abilities, to cooperate. Meanwhile, the employees should develop the skills of stress management and reduction (Mustafa et al., 2015).

**Methodology.**

The aim of the research is to examine the expression of stress experienced by healthcare specialists at work and to substantiate the means of management and prevention of stress experienced at work based on the results of the research. In order to achieve the aim of the research, the strategy of mixed research methods has been applied:

*Scientific literature analysis.* While analysing scientific literature, the conceptions of stress at work were clarified, theoretical models of stress at work were defined. In addition, using the information from scientific information sources, the classification of healthcare specialists and the main factors of stress experienced by healthcare specialists were revealed. Methods of stress management offered in the literature are also presented.

*Quantitative research: anonymous questionnaire survey.* Questionnaire surveys were used to interview healthcare specialists in order to find out the expression of stress at work. The study sample includes 326 representatives from 5 different healthcare organisations. After defining the criteria of case study, Šiauliai city was selected for the research. Statistical data analysis has been carried out using SPSS software.

*Qualitative research: semi-structured interview.* The aim of this research – to reveal management strategies and prevention measures of stress experienced by healthcare specialists at work. Number of interview participants – 5. This number has been selected because of "saturation effect" when the respondents' answers started repeating. Thus, it was decided that current number is sufficient for generalisations of research results. *The obtained data is described using quotes which are divided into categories and subcategories.*

**Results**

During factor analysis, applying the method of Principal Components and VARIMAX rotation, 36 statements about stress at work were reduced to a 6-factor model: good relationships with authorities, big workload, clear role at work, good relationships with colleagues, tense relationships with colleagues and wide opportunities at work. Factorial analysis presented a rather significant link of the majority of statements with the factors. Using Corelation analysis were described the statistical relationships between extracted factors (see table No 1).

Table 1. Correlation between stress at work factors

| **Correlation** | Good relationships with authorities | Big workload | Clear role at work | Good relationships with colleagues | Tense relationships with colleagues | Wide opportunities at work |
|---|---|---|---|---|---|---|
| Good relationships with authorities | - | -0,511** | 0,417** | 0,767** | -0,492** | 0,607** |
| Big workload | | - | -0,282** | -0,434** | 0,585** | -0,386** |
| Clear role at work | | | - | 0,451 | -0,362** | 0,426** |
| Good relationships with colleagues | | | | - | -0,531** | 0,565** |
| Tense relationships with colleagues | | | | | - | -0,396** |
| Wide opportunities at work | | | | | | - |

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

The strongest direct statistically significant relationship was founded between the variables „Good relationships with colleagues" and "Good relationships with authorities" (r-=0,77, p<0,01). It can be assumed that those who more often maintain good relations with their colleagues also maintain good relations with their managers. It is clear that in a working environment where there is better agreement with managers, health care professionals have more freedom to choose how to do their work, when to take a break, etc. Also, the results are showing, that those respondents who work intensively, feel a lack of time and sometimes even work overtime, have worse relations with the authorities of the institution where they work.

When asked to distinguish main factors of stress at work, healthcare specialists indicated that emotions of patients' relatives and their requirements always cause stress.

**Table 2. Factors of stress at work**

| **Factors** | **Frequency** | | | | | |
|---|---|---|---|---|---|---|
| | **Always** | **Mostly** | **Often** | **Sometimes** | **Rarely** | **Never** |
| Infectious diseases | 8,0 % | 15,0 % | 13,8 % | 31,9 % | 20,6 % | 10,7 % |
| Strained relations with colleagues | 7,4 % | 10,7 % | 15,3 % | **32,2 %** | 23,6 % | 10,7 % |
| Heavy workload and long working hours | 14,7 % | **22,4 %** | 18,7 % | 23,6 % | 15,0 % | 6,1 % |
| Illnesses or even deaths of patients | 7,7 % | 13,5 % | 16,9 % | 28,5 % | 17,5 % | 16,0 % |
| Emotional or physical violence in the workplace | 6,4 % | 10,7 % | 9,8 % | 20,2 % | 24,2 % | 28,5 % |
| New job or new responsibilities | 10,1 % | 12,0 % | 13,2 % | 26,1 % | 21,8 % | 16,9 % |
| Poor working conditions | 8,3 % | 11,0 % | 15,3 % | 26,1 % | 19,6 % | 19,6 % |
| Professional career development | 4,9 % | 6,4 % | 18,1 % | 30,1 % | 21,2 % | 19,3 % |
| Injuries at work | 6,1 % | 8,9 % | 11,7 % | 19,6 % | **27,6 %** | 26,1 % |
| Patient turnover | 7,1 % | 7,7 % | 14,4 % | 21,5 % | 19,0 % | **30,.4 %** |
| Emotions of patients' relatives and their demands | **16,9 %** | 20,6 % | 22,1 % | 21,2 % | 11,3 % | 8,0 % |
| Mistakes at work | 13,5 % | 16,3 % | 16,0 % | 29,1 % | 20,2 % | 4,9 % |
| Quick decision making | 10,7 % | 21,5 % | **22,1 %** | 23,0 % | 19,9 % | 5,8 % |

Looking to the Table No 2, usually, stress is caused by big workload and long working hours. Often stress is experienced due to quick decision making and manifestations of mobbing. Healthcare specialists state that stress is caused also by tense relationships with authorities and colleagues. Injuries at work are less likely to cause stress.

The research revealed statistically significant relations between some demographic indicators (age, position, work experience) and frequency of stress at work. Statistically significant relation was also obtained between evaluation of work and frequency of stress at work (see Table No 3).

**Table 3. Relation between evaluation of work and frequency of stress at work**

| | Frequency of stress at work | | | | | **Sig.** |
|---|---|---|---|---|---|---|
| | Always | Often | Rarely | Sometimes | Never | |
| ***Work evaluation*** | | | | | | |
| Unstressed | 0 % | 0 % | 17,6 % | 41,2 % | 41,2 % | |
| Moderately stressed | 1,6 % | 33,3 % | 26 % | 39,0% | 0 % | **$\chi 2 = 301,9$ $p = 0,001 < 0,05$** |
| Stressed | 4,5 % | 75,0 % | 3,8 % | 16,7 % | 0 % | |
| Extremely stressed | 46,3 % | 50 % | 0 % | 3,7 | 0 % | |

Healthcare specialists who rated their work as extremely tense, always experience stress at work (46,3%), and those who rated their work as tense, often experience stress at work (75,0%). Meanwhile, healthcare specialists who consider their work as stress-free never experience stress at work (41,2%). In addition, the obtained results show that the more often healthcare specialists experienced stress at work, the more their physical and emotional health interfered with their ordinary social activities ($\chi 2 = 106,2$ $p = <0,001 < 0,05$).

According to the results, healthcare specialists state that additional reward or other evaluation for performed work would be most likely to help to avoid stress at work, whereas parties or trips would be the least likely to reduce stress. Good relationships with authorities or other managerial staff, opportunity to participate in organisation's decision making were distinguished as the most important preventive measures. Assurance of safe work environment and elimination of mobbing manifestations were indicated as important preventive factors. Healthcare specialists consider the following preventive factors as less important: strengthening the development of stress management and adapting the work environment for rest, relaxation or other relaxing activities.

The results obtained during qualitative research reveal that healthcare specialists often encounter stress at work due to both personal factors, i.e., empathy to the patients, their health condition, emotions and relatives and organisational factors, i.e. relations with authorities, relations with colleagues, workload, etc. Stress occurs in different ways such as burnout, sadness, mistakes. The methods of stress management have been distinguished: seminars, trainings, individual interviews (consultations), stress management strategies (see Table 4).

**Table 4. The methods of stress management**

| **Category** | **Justifying statements** |
|---|---|
| Trainings | *"He listens remotely to the courses organized by the Institute of Hygiene on "Stress at work and how to overcome it", etc." (Informant A)*<br>*,As soon as I find out about ongoing online courses on the topics of stress and tension management, I always share it with the employees. For example: the last time I recommended employees to register for free training "Prevention of psychological violence in personal health care institutions" "(Informant D)*<br>*"Internal training is conducted on various topics, including stress and psychological violence. We teach our employees not only how to communicate with patients but also their relatives" (Informant E)* |
| Individual interviews, consultations | *"The fastest and most effective way is conversations with employees. We try to find the causes of stress and eliminate them." (Informant B)*<br>*We always want to listen to our colleagues, if we see that our help will not help much and we see the need to offer a psychological consultation. (Informant E)* |
| Lectures, seminars | *"We suggest that employees register for all kinds of seminars, because the seminars conducted by professionals also have great benefits." (Informant B)*<br>*"We had bought lecture sessions on teamwork, peer communication." (Informant C)* |
| Educational programmes | *"During the meeting, everyone was also introduced to such stress management apps as "self-help" and the website FOREST + for doctors." (Informant D)* |

**Conclusions.** It can be concluded that healthcare specialists often encounter stress that negatively affects not only their quality of work but also health. The results revealed that there are both individual and organizational factors, that affect the stress in work environment. Mostly stress is experienced due to big workload and long working hours, quick decision making, manifestations of mobbing. Healthcare specialists state that they experience stress because of tense relationships with authorities and colleagues. The most frequent and most important factors that cause stress at work – personal factors, e.g., empathy to patients, their health condition, expression of emotions, relationships with patients' relatives.

Prevention of stress at work is an important part of management of stress at work. For the healthcare specialists it is important that their authorities or other managerial staff would maintain good relationships with them, would ensure safe environment at work and would contribute to the elimination of mobbing manifestations. Additional reward or other evaluation for a well-done work would help to avoid stress at work.

Healthcare institutions have distinguished the following stress management measures: involvement of employees in decision making, annual interviews with authorities, educational seminars and trainings, creation of employee-friendly organisational environment and stress management strategy, assurance of safe work environment and elimination of manifestations of mobbing. However, the research showed that for now organisations lack knowledge about internal stress management policy, plans and presentation of preventive measures to employees. Referring to this, it can be concluded that more attention must be paid to development of stress at work management in organisations. It appeared that organisations lack knowledge about the models of development of stress at work management and internal stress management policy of organisation, therefore, this stimulates to look for the measures that could help to change the situation.

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# IMPACT OF OCCUPATIONAL STRESS DURING COVID-19 PANDEMIC TO THE MENTAL HEALTH OF THE HEALTH CARE WORKERS

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**Summary**

In the spring of 2020, WHO announced the COVID-19 pandemic, caused by the Sars-Cov-2 virus. Health care staff through increased contact with patients was at increased risk of infection with this virus. The aim of the study was to assess the impact of the COVID-19 pandemic on the mental health of midwives, in particular, the increase in depression among midwives during the COVID-19 pandemic. The research method used in the work was the author's questionnaire together with the Patient Health Questionnaire (PHQ-9), which was intended for the screening of depression. Midwives (n=200) from Poland were surveyed using the CAWI (Computer Assistant Web Interview) technique. The results were processed with the Statistica program. The study revealed that among the surveyed midwives, the level of depression severity was found to be moderate.

**Keywords**: occupational stress, COVID -19, mental health, health care staff, midwives.
**JEL code: I00**

## Introduction

In the spring of 2020, WHO announced the COVID-19 pandemic, caused by the Sars-Cov-2 virus. Infection was mainly asymptomatic or light symptomatic. Some patients developed a severe form of this disease, which lead to multi-organ failure, 2% of patients died from COVID-19. Health care staff through increased contact with patients was at increased risk of infection with this virus. Health care professionals had to adapt to the new conditions during the pandemic. Wearing personal protective equipment was required when working with a patient suspected or infected with Sars-Cov-2 virus. These measures did not completely protect against COVID infection. During pandemic, not only the physical health that was at risk. Health care workers were at the increased risk of mental illness. Due to the emotional contact with patients and the stress associated with a dangerous new pathogen, midwives and other health care specialists were more exposed to the diseases such as depression, post-traumatic stress disorder, and adaptation disorders.

Depressive disorders could be caused by such occupational factors as: increased demands, reduced control over entrusted tasks, lack of adequate gratification, interpersonal conflicts or stress related to social roles and isolation. Disorders could be detected by the main factors: reduced professional performance and direct reporting. Depression could be diagnosed if two of the following symptoms were present for at least two weeks:

- the patient experiences a depressed mood for most of the day, to a degree that is significantly abnormal for the individual;
- loss of interest and anhedonia, a condition in which a person is unable to experience pleasure;

- marked decrease in energy and activity.

Additional criteria that are considered for diagnosis include:

- disturbed circadian rhythm - insomnia or excessive sleepiness;
- psychomotor retardation;
- loss of self-confidence;
- increased levels of tiredness;
- appetite disorders, mainly lack of it;
- feeling unjustified guilt;
- suicidal thoughts.

In the case of depression and burnout, some causal factors and symptoms overlap. Similar symptoms include fatigue, weakness of feelings and an increased sense of helplessness. However, there are clear differences - the perceived lack of effectiveness does not apply only to professional tasks. There is a significant lack of hope and suicidal thoughts may arise. Depression prevents normal functioning and causes a decrease in the quality of life. The COVID-19 pandemic, by activating stressors, associates with an increased risk of substance abuse and alcohol usage among frontline workers.

**The aim of the** study was to assess the impact of the COVID-19 pandemic on the mental health of midwives, in particular, the increase in depression among midwives during the COVID-19 pandemic.

**Methodology**

The study covered midwives from Poland in the period from November 18, 2021 to April 1, 2022. The research method used in the work was the author's questionnaire together with the Patient Health Questionnaire (PHQ-9), which was intended for the screening of depression. Midwives were surveyed using the CAWI (Computer Assistant Web Interview) technique. The study included a group of 200 midwives. The research results were transferred from the Google Form to the Microsoft Excel, and then processed with the Statistica program.

**Results**

During the COVID-19 pandemic, work fatigue increased sharply according to 162 respondents (81.00%). Among all respondents, only 34.50% had access to psychological help. Among the health care staff during the pandemic, out of the 23 emotional states listed in the chart, exhaustion (47.50%) and drowsiness (45.00%) were predominant. The study results showed that in the group of midwives surveyed, 39% had moderate depression (10 to 14 points), 29% had mild depression (5 to 9 points), 14.5% had moderately severe depression (15 to 19 points), 7% were severely depressed (20 to 27 points), and 10.5% were not depressed. The representatives from most of the wards indicated the symptoms of moderate depression, with the exception of the obstetrics and gynaecology ward and pathology of pregnancy, where symptoms of moderate-severe depression prevailed. The midwives from the neonatal ward participating in the study most often had symptoms of mild depression. There was no statistically significant associations between the work in the COVID-19 Ward and mental health problems ($p>0.05$). There was a statistically significant association between virus infection at work and work in the COVID Ward ($p<0.05$).

**Discussion**

An association between the severity of occupational stress and the beginning of the major depressive episodes has been reported in large epidemiological studies. The prevalence of depression among health care professionals (16.5%) is much higher than that observed in the general population (9%). This phenomenon has intensified during the COVID-19 pandemic. In a meta-analysis, which considered 10 epidemiological studies, the prevalence of depression among frontline workers during the outbreak of the pandemic was estimated at 22.8%. Subgroup analysis showed differences in terms of gender and occupation. Nurses showed a higher percentage of affective symptoms compared to the men and other medical personnel, respectively. The prevalence of insomnia was estimated at 38.9%, and the prevalence of anxiety disorders in 13 studies at 23.2% [28]. A study from Turkey, that analysed midwives during the COVID-19 outbreak found a prevalence of depression of 31.8%. The risk of depression was 2.95 times higher for midwives who feared infection with the Sars-Cov-2 virus and 1.8 times higher in employees who were very afraid of infection among the family. In addition, a 1.35 times higher percentage of depression was associated with midwives taking care of patients diagnosed with COVID-19.

**Conclusions**

Among the surveyed midwives from Poland, the level of depression severity was found to be moderate.

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# EMOTIONAL AND MENTAL FUNCTIONING OF CHILDREN WITH FASD AFTER SENSORY INTEGRATION CLASSES IN THE OPINION OF PARENTS AND GUARDIANS

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**Summary**

FASD is a spectrum of fetal alcohol disorders resulting from prenatal fetal damage caused by maternal alcohol consumption that are incurable and non-genetic. These disorders include physical, mental, behavioural and learning development. The aim of this study was to assess the impact of sensory integration on the functioning of children with FASD in the opinion of parents and guardians. The study involved 60 parents or legal guardians of children with FASD. A diagnostic survey was conducted among parents and guardians of children with FASD, whose children attended sensory integration (SI) therapy.

Most of parents (97%) participating in the study observed a positive change in the functioning of their children after attending sensory integration therapy. The greatest improvement was observed in sensorimotor and emotional functioning.

**Introduction**

Fetal alcohol spectrum disorders (FASD) result from prenatal exposure to alcohol and include fetal alcohol syndrome (FAS), partial fetal alcohol syndrome (PFAS), alcohol-related neurodevelopmental disorder (ARND), and alcohol-related birth defects. FAS is the most severe form of FASD.

FASD is a spectrum of fetal alcohol disorders that are incurable and non-genetic. This name was proposed in 2000 by Stratton et al. as a term used to describe all disorders resulting from prenatal fetal damage caused by maternal alcohol consumption. These disorders may include physical, mental, behavioural and learning development. Alcohol can cause malformations in all systems and organs. The basic clinical features of people with FASD are slow physical development, manifested by low body weight and height, and reduced head circumference, both at the prenatal stage and later. Another feature is various degrees of developmental damage to the brain, which is associated with neurological and behavioural disorders, intellectual impairment of various degrees (in 30-50% of children with FASD), as well as impaired sensorimotor development. What can be observed at first glance are anomalies in the face: small eye fissures, widely spaced eye sockets, shallow philtrum, narrow upper lip, flattened bridge of the nose, small jaw, flattened middle part of the face, as well as low-set, distorted auricles.

Alcohol consumption by pregnant women is a common problem in all countries. However, due to diagnostic difficulties in diagnosing FASD, data on its occurrence are quite imprecise. Different sources give different estimates, as there is no unambiguous prevalence data. It should be assumed that the actual frequency of the phenomenon is much higher. It is estimated that FASD is the most common non-genetic neurodevelopmental disorder in Europe and affects 1% of live births. Based on the data on records of alcohol

consumption during pregnancy, it was estimated that the problem of FASD in the world may affect 22.77/1 000 people.

The functioning of children with FASD is partly the result of damage to the central nervous system that causes primary disorders, and partly caused by the lack of early diagnosis and lack of help when secondary disorders develop. Primary symptoms, resulting from damage to varying degrees of various structures in the brain, include neurodevelopmental deficits, including:

- reduction of intellectual abilities in about 30-50% of children,
- relationship disorders,
- delay in emotional, social and cognitive functioning,
- difficulty inhibiting reactions, impulsiveness.

According to Streissguth, the secondary symptoms appear in children, as well as adolescents and later adults, who where did not diagnosed in time with this problem (usually should be diagnosed by the age of 5 years), and did not have proper support. Based on research conducted by Streissguth, the following could appear:

- depression, isolation, mental health problems (in almost 90.00%),
- difficulties in establishing relationships,
- reactions inadequate to the situation, outbursts of anger,
- rigidity of behaviour in social situations,
- aggressive behaviour.

It has been established that there is no such thing as a "safe dose of alcohol", any amount of alcohol has a negative effect on the developing fetus. It was found that every 50 ml of alcohol consumed kills 20 million nerve cells. The most harmful to the developing body is both consuming small amounts over a long period, and drinking large doses at a time. Despite the common opinion and knowledge about the harmful effects of alcohol, the results of research conducted by PARPA showed that every third woman admitted to drinking alcohol during pregnancy. On the other hand, in a study commissioned by the "Giving birth in a human way" Foundation, 33% of women came across the opinion that one should even drink a glass of red wine on a regular basis. However, these data indicate that there is still considerable lack of awareness in the field of FASD and the risk of having a child with a disability.

Children with sensory processing disabilities have difficulty receiving and processing various stimulating factors from the environment around them. As a result, they have reduced ability to act and cooperate with the environment, and in combination with brain damage, especially in the frontal lobes, children with FASD may present a number of antisocial behaviours and be perceived as rude or poorly behaved.

The aim of this study was to assess the impact of sensory integration on the functioning of children with FASD in the opinion of parents and guardians, in particular whether, in the parents' opinion, SI therapy brought beneficial effects in the emotional and mental functioning of children.

**Methodology**

The study involved 60 parents or legal guardians of children with FASD. Of the completed questionnaires, 34 concerned boys (56.7%), and 26 girls (43.3%). The children included in the study were 3-13 years old: seven were 3 years old, six were 4 years old, seven were 5 years old, four were 6 years old, eight were 7 years old, five were 9 years old, six were 10 years old, five were 11 years old, eight 12 years old and one child aged 13. The research method that was used was a diagnostic survey conducted among parents and legal guardians of children with FASD, whose children attended SI therapy.

**Results**

Most of the respondents have children with full-blown FAS under their care; they constitute 61.7% of all respondents. Partial FAS (PFAS) was diagnosed in 25% of the children surveyed, and ARND was diagnosed in the least 13.3 %. Only 35% of the surveyed children have a mild certificate, and only 2 people answered that their children are moderately and severely intellectually disabled (1.7% each). The majority of children covered by the survey are physically fit, forty people (66.7%) answered yes, seventeen people (28.3%) admitted that their child has slight motor difficulties, and only three people (5%) indicated that the child has significant motor difficulties. In 96.7% of the research group, sensory integration therapy improved the functioning of the child. Only 3.3% of respondents did not notice any improvement. The children included in the study were aged 3 to13 years. In the opinion of the parents, there was an improvement in the functioning in the emotional sphere, i.e. sleep problems were significantly reduced in 15 children, while 44.90% of parents noted even a slight improvement. The difficulty, according to the parents, was controlling emotions and impulsiveness. At the same time, it was a problem occurring in almost all children of the surveyed persons

(96.70%) and only 13 parents did not notice any improvement in this matter. In the majority of children (92.00%) with self-stimulation, it decreased from slight to very large scale. Parents also noticed a reduction in aggressive behaviour in 27 children. Only 15 of those surveyed saw a slight improvement in frequent mood changes and anxiety; the same number did not notice any changes regarding these two problems.

**Conclusion**

Almost 97% of the parents participating in the study observed a positive change in the functioning of their children after attending sensory integration therapy. The greatest improvement was observed in sensorimotor and emotional functioning. In the sphere of emotional functioning, parents noticed a significant improvement, especially in the difficulties related to: controlling emotions, calming down and self-regulation, and problems with sleep. Some parents also noticed a decrease in self- stimulating and aggressive behaviour.

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# INSIGHTS INTO THE PROMOTION OF PREVENTIVE HEALTHCARE SERVICES

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**Summary**

There is a growing incidence of non-communicable diseases (hereinafter 'NCDs') and several deaths associated with these diseases. Lithuania is one of the largest among the European Union countries. Scientists say this number can be significantly reduced by actively applying disease prevention methods. The study examines the theoretical aspects of promoting providers and recipients of Health Care Preventive Services. The researchers analyse statistical information showing the involvement of individual healthcare institutions in encouraging the public to participate in preventive programmes. The theoretical analysis and conclusions are drawn, and the planned survey of selected personal healthcare institution managers and patients will be used in further scientific research to research and create more effective means of public promotion.

**Keywords:** preventive programmes, healthcare services, promoting, encouraging providers and recipients.

**JEL code (s)** I11, M38, M51.

## Introduction

"Health is the greatest wealth". This saying is not just a catchy phrase. "Healthy" means an able-bodied person who can care for himself and others. The goal of every state is to have a healthy society, as it is one of the main factors of a sustainable economy and a harmonious evolution of the country. However, the path towards this goal differs in individual countries of Europe and the world.

The reform of the health system currently underway in Lithuania presents a whole series of challenges. First of all, there is a high mortality rate. The indicators of this criterion are as much as 1.4 times higher than the average of the European Union (hereinafter 'the EU'), and the number of deaths that could have been prevented after a visit to a healthcare establishment in Lithuania is the second highest in the EU. Short life expectancy is another challenge identified in the reform. This criterion is five years shorter than the EU average, and the number of deaths from preventable causes related to health care and prevention, as well as a healthy lifestyle, is the highest in the EU.

The study object is the promotion of the use of preventive programmes. The scientific problem is how and by what means to encourage people to use preventive programmes more actively.

The aim of analyse the theoretical and practical aspects of promoting preventive healthcare services for providers and recipients.

## Theoretical background

Encouragement and motivation are the driving force behind a person's goal-directed behaviour and willingness to act or not act. Encouragement and motivation describe the urge to perform a particular action or change. It is important to note that the scientific literature classifies and divides motivation into two parts, i.e. extrinsic and intrinsic. In terms of terminology, intrinsic motivation is referred to as 'motivation', while extrinsic motivation is usually defined as 'encouragement'. These terms and their definitions and classifications will be used in the rest of this research work.

Encouragement is an action influenced by external factors, while motivation results from internal or personal influences. Motivation is more closely related to a personal disposition, an inner sense of satisfaction. It is often associated with a person's sense of self-fulfilment, moving needs, and aspirations. On the other hand, encouragement refers to the influence through external means of inducing a person or a group to behave by the rules of the person or institution inducing them. In the Oxford Dictionary, encouragement is the act of encouraging somebody to do something, something that encourages somebody (Oxford Learner's Dictionaries, n.d.). When analysing the definition of the term 'encouragement', there are several different descriptions of the act, such as 'urging', 'motivating', etc. It should be noted that the descriptions of the act of 'encouragement' also have different meanings that need to be clarified and defined to use the terms as accurately as possible in the teaching of theory and the development of the encouragement model.

Researchers have identified three main components of motivation: activation, persistence and intensity (Hockenbury & Hockenbury, 2010):

1. Activation is the decision to initiate behaviour. An example of activation is enrolling in a psychology course because you want to get a degree.

2. Persistence - is the persistent effort to achieve a goal despite the existence of obstacles. An example of perseverance would be coming to a psychology class even if we are tired because we went to bed late.
3. Intensity is the concentration and drives to achieve a goal.

Financial tools encourage patients to be more active in their health (Loewenstein et al., 2007). Two views on using financial incentives for patients emerged from a survey of patients in waiting rooms (Long et al., 2008). Interestingly, smokers were more likely than non-smokers to accept financial incentives for smoking cessation, and obese people were more likely than those who were not overweight to accept incentives to lose weight. Some are most concerned about programmes that penalise participants for inappropriate behaviours such as smoking (Bishop & Brodkey, 2006; Halpern et al., 2009; Pearson & Lieber, 2009). Programmes need to be designed and delivered so that the most vulnerable do not feel guilty and unable to benefit from them.

**Methodology**

The scientific methods used were analysis of scientific literature, systematisation of data, logical analysis, interpretation, comparison, summarisation, and presentation of conclusions. These methods are applied to the study of encouraging and motivational theories. Secondary statistical data, i.e., Health Information System data, were also used to identify and analyse the research problem.

**Results**

The number of deaths from complications of chronic 'NCDs' is constantly growing and is one of the highest among EU countries. Therefore, the goal of the health care reform is to improve the quality of public health care, reduce the uneven distribution of the population's health, morbidity and mortality rates from NCDs, promote healthy ageing and create a system for early identification and assistance of suicides, which is somewhat necessary.

To achieve the set goals, the health reform is carried out through the development of the services of the general practitioner, his/her team and ambulatory services, optimisation of the hospital network and increasing the quality of services, promotion of a healthy lifestyle, development of nursing services, and creation of measures to reduce medical costs.

Data show that as much as 80% of the health problems, such as diagnosis and treatment of acute diseases, long-term care of chronic diseases and disease prevention, could be solved by providing primary health care services. However, to date, residents in Lithuania are hospitalised more often than in other EU countries. It is generally agreed that by strengthening the institution of the general practitioner and shortening the time of registration and access to the general practitioner, up to 20% of hospitalisations could be avoided. Balancing this area would improve the quality and availability of health care services, shorten the time of access to specialist doctors, and reduce preventable hospitalisations.

State-funded prevention programmes have been applied since 2004. On average, only about 40% of individuals use prevention programmes (see Figure 1). It is true, though, that this percentage may differ per healthcare institution and ranges from 0 to 40. This means that there are service providers who need to apply more management measures to encourage patients. On the contrary, some institutions work in this direction quite efficiently.

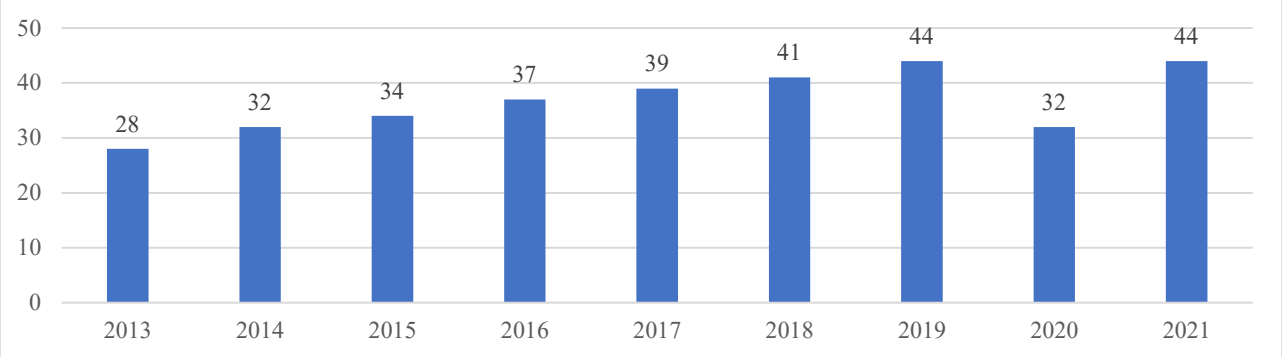


**Figure 1.** The proportion of the target population in Lithuania that participated in a cardiovascular disease prevention programme %

*Source:* compiled by the authors based on data from the health information system "Sveidra"

Many essential elements in this reform process must work in harmony with each other. The reform is a social dialogue and cooperation with patients, medical organisations, government representatives, and municipalities. Questions that arise are: "What kind of health reform do we want to offer to the residents of Lithuania? How to create a system that would help a healthy person not to become ill, and how flexibly the system works and meets the needs of a person when he/she is ill?". At the epicentre of these questions is the human patient, who, in my opinion, is the most critical element of the reform process. Therefore, it is imperative to understand the patient's perception, self-awareness and understanding of how to care for their health.

**Conclusion**

Encouragement and motivation are the impetus for a person's goal-oriented behaviour and willingness to either take action or refrain from it. These concepts encompass the inclination to engage in a specific course of action or bring about a change.

The health problems, such as diagnosis and treatment of acute diseases, long-term care of chronic diseases and disease prevention, could be solved by providing primary health care services.

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# SECTION
# LOCAL COMMUNITIES IN URBAN AND HUMAN REGENERATION

## CULTURAL HERITAGE OF UKRAINE: IMPACT OF RUSSIAN INVASION ON HERITAGE AND LOCAL COMMUNITIES

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**Summary**

The military operations that have been taking place in Ukraine since February 24, 2022, have resulted in thousands of casualties and inflicted enormous material damage. Every day, news portals show images of the destruction that the Russians are causing in cities and rural areas. Attacks on residential areas and public facilities have shown that the Russian military, by causing unprecedented damage on a scale not seen since World War II, aim to terrorize the Ukrainian people and bring about their ethnic annihilation. Hence, contrary to international conventions, the Ukrainian cultural heritage has also become a target of the military operations.

**Keywords:** cultural heritage in danger, Russian invasion, Ukraine, heritage restoration management.

**JEL codes: R58, Z32.**

**Introduction**

Cultural heritage is the property of previous generations and has different types and types of manifestation, including movable and immovable, making up material cultural heritage. Cultural heritage includes monuments, groups of buildings, sites. Intangible cultural heritage is part of material or acquired by previous generations and passed on by the local community. Intangible cultural heritage includes traditions or living expressions inherited from ancestors and passed on to descendants (oral traditions, social practices, etc.) that communities, groups recognize as part of their cultural heritage (UNESCO, 2003).

The beginning of the active phase of a full-scale war on the territory of Ukraine from February 24, 2022 is also associated with the destruction of public goods, including infrastructure facilities, settlements, as well as objects of cultural heritage (President of Ukraine, 2022). A full-scale invasion is the next stage of Russian military aggression since 2014 (Law of Ukraine 2014). Territories that have been under occupation for a long time are also at risk of improper preservation and conservation of cultural heritage objects. First of all, we are talking about the Autonomous Republic of Crimea, Donetsk and Luhansk regions (Pasikowska-Schnass, 2022).

Russia's military actions since February 24, 2022 have caused destruction both in the frontline zone, where active combat operations took place, and in the areas of aerial bombardment by Russian weapons in the rear areas of Ukraine (Mallard, 2022). Thus, we should note that the territory of Ukraine has varying degrees of intensity of hostilities. An up-to-date list of administrative units of Ukraine located in the hostilities zone, under occupation or liberated from occupation is published periodically.

The main issues of restoring and preserving the cultural heritage of Ukraine are as follows:

–available and complete information regarding the destruction and damage of objects of cultural heritage;

- maintaining a register of cultural heritage objects with varying degrees of damage, using modern information transmission technologies.

- involvement of all interested parties in the register of objects affected by the war, as well as in the process of restoration of these objects. Analyzing documents on heritage restoration in Croatia and Bosnia and Herzegovina, international organizations, including UNESCO, ICOMOS, European foundations and organizations, were significantly involved (PACE, 1993). In this case, there is a question of involving local communities in the arrangement and process of restoration of cultural heritage, primarily immovable, which is important for these communities. This paradigm considers the involvement of local communities together with local authorities, in addition to international organizations, state institutions, and other stakeholders (UNESCO, 2013).

**Theoretical background**

The importance of protecting cultural heritage located in a zone of armed conflict can be abstract, strategic and legal. In an abstract sense, cultural property 'forms a vital part of the cultural identity of

individuals, communities, peoples and all humanities' (O'Keefe et al., 2016). In this case, we are talking about the protection of cultural heritage (tangible and intangible) as the property of local communities.

The destruction of cultural heritage objects that are associated with a certain ethnic or social group is cultural genocide, and is seen as a method of destroying a cultural or social group and its assets (Hadžimuhamedović, 2019).

The destruction of cultural heritage objects on the territory of Ukraine occurs not only at point objects due to rocket attacks, but also in the zones of Russian occupation, vandalism occurs, for example, museums, libraries, cultural centers of local communities. Entire city blocks and urban landscapes are also being destroyed.

International law has a number of normative documents for the protection of cultural heritage in conditions of armed conflict. The determination of the protection of cultural heritage in a situation of armed conflict and the inclusion of international organizations for the preservation of heritage is an important tool on the way to the restoration of heritage, the imposition of responsibility for the destruction of objects, as well as the basis for access to international assistance in the restoration of heritage, the responsibility of the aggressor state for committing a crime against cultural heritage.

The Hague Declaration of 1954 provides for the protection of cultural heritage in conditions of armed conflict. The state and protection of cultural heritage located in the zone of occupation of another country is the responsibility of the occupying country. This means that immovable cultural heritage of Ukraine in the zone of Russian occupation falls under the concept of criminal actions of the occupier in case of destruction or damage. The issue of cultural heritage protection is a competence of UNESCO. This organization can help the state to which the heritage belongs in organizing the protection of cultural heritage (UNESCO, 1954).

The issue of dismantling objects of cultural heritage is regulated by the law on its protection even under martial law. Military administrations must coordinate the change in the physical condition of the object with the bodies of management and protection of cultural values of Ukraine (President of Ukraine, 2022). Cultural heritage in the conditions of an armed conflict is ensured by the norms of international humanitarian law, which were discussed above, and is also regulated by the actions of the Armed Forces of Ukraine.

On the other hand, the introduction of a resolution on the lifting of a part of the restriction on construction in the conditions of martial law is quite dangerous. For example, the availability of architectural and urban planning documentation can be carried out in agreement with the local administration, the body responsible for the protection of cultural heritage. Construction approval can be carried out taking into account the use of land under cultural heritage sites. The absence of a decision of the local authority to build on the lands where the objects of cultural heritage are located within 30 days is considered as a construction permit. The situation with the disorganization of local authorities and the impossibility of providing such a solution is dangerous and can potentially lead to the loss of valuable cultural objects (Law of Ukraine, 2022).

Large-scale destruction as a result of military operations, the absence or incomplete data of the necessary documentation and the register of cultural monuments and documentation of destroyed objects, the disorganization of the work of local authorities may in the future become a barrier to the restoration of the cultural space that existed before the large-scale invasion of Russia. as well as the loss of cultural objects and entire complexes.

The problem of cultural heritage management is related to several administrative aspects. The first aspect is related to the fact that at lower administrative levels there are often no organizational departments of local authorities that should deal with cultural heritage. Often this issue is related to national and regional politics, urban settlements. At the grassroots administrative units, heritage management is the task of individual departments, but often without the appropriate specialists. These objects of local importance must be on the balance sheet of the local government. The reason for the absence of a significant part of cultural heritage outside the register is often the reluctance to keep such objects on the financial balance or the lack of assessment of objects of cultural importance.

**Methodology**

The database for the analysis of cultural heritage objects is the registers of the Ministry of Culture and Information Policy of Ukraine (as of 01.01.2022), as well as data on destroyed objects, including cultural heritage, modern cultural objects outside the register of Ukrainian heritage. The definition of territories with the degree of participation in Russia's full-scale aggression against Ukraine concerned the allocation of several types of areas: areas with long-term occupation (since 2014), areas of active hostilities on a certain date, areas liberated from Russian occupation, areas that were not captured during the period from February 24, 2022.

The register of cultural heritage objects of national and local importance was developed at the level of a new administrative division (at the level of districts), divided according to the classification of cultural

heritage objects of the Law of Ukraine "On Protection of Cultural Heritage" (Law of Ukraine, 2000). The type of cultural heritage objects was determined in accordance with the declared register. The part of the objects that belong to several types at the same time was determined by the first submitted type (for example, an object of architecture, history was defined as an "object of architecture").

The database of objects that suffered various damages or destructions were divided into three groups according to the level of destruction (according to the information provided on the site): destroyed, ruined and damaged. Most of the objects placed on the site belong to modern architecture or are outside the register of cultural heritage. This article uses data to show the level of destruction of public goods, including cultural heritage.

The analysis of quantitative data was carried out in several stages: the division of cultural heritage objects by types was carried out on the basis of the state register of cultural heritage objects of national and local importance. The research took place in several stages.

At the first stage, cultural heritage sites were counted according to the new administrative division of Ukraine (after 2020) and by species (Fig. 1).

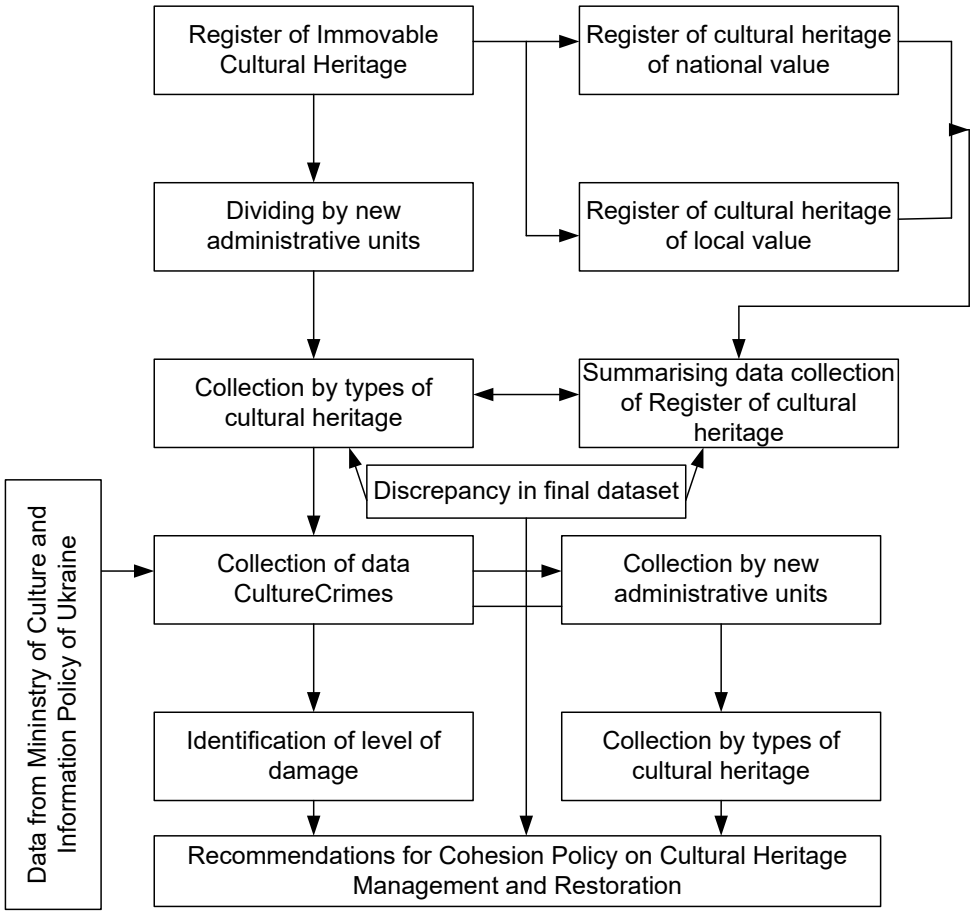


**Figure 1.** Research structure and main goals for solution
*Source: own elaboration.*

The creation of an own register at lower administrative levels is related to the lack of a list of objects according to the new administrative division approved by the Ministry of Culture and Information Policy of Ukraine. The motivation for the creation of such a register is related to the detailing of the differences at the level of the administrative district of the differences in the loss and damage of cultural heritage. At one administrative level (here – the region), there may be differences, whether this territory is: a) on the front line and in the zone of active operations; b) in the occupation zone or was in the occupation zone; c) areas outside active hostilities (rear zone of hostilities).

**Results**

The number of objects of cultural heritage of Ukraine has different potential. According to the Ministry of Culture and Information Policy of Ukraine, there are 20,339 objects of national and local significance. The largest number of objects is concentrated in the city of Kyiv, regions of Western Ukraine (Lviv, Zakarpattia,

Ternopil, Chernivtsi regions), part of the regions of the north (Chernihiv, Sumy regions) and the south (Autonomous Republic of Crimea) (MCIP, 2022a).

The largest share of objects is architectural and urban planning monuments, as well as objects of historical value. Often, such objects have a complex classification, belong to several categories of cultural heritage at the same time. The greatest concentration of such objects is mainly in urban settlements, as well as several historical regions of Ukraine: Galicia and Volyn, Zakarpattia, left bank of Dnieper Ukraine, Kyiv.

But more than 70,000 objects are not included in the register and require evaluation and inclusion in the register of national or local significance (Polyvach, 2012). These objects also cannot receive funds from the local or national budget for restoration, restoration, etc.

The full-scale invasion of Russia on the territory of Ukraine led to the destruction of cultural heritage sites. By the end of November 2022, the number of cultural heritage objects and cultural objects is 529 units. During the period from the end of February 2022, objects in the war zone and areas freed from occupation were destroyed. However, missile strikes continue on the territory, which is far from the front line with the Russian occupation army.

The largest number of destructions, which were recorded as a crime against the heritage of Ukraine, was observed in the first place of the war. The greatest peak of destruction in March-May 2022. This number of objects is the result of ground military operations in the north, east, and south of Ukraine with the active use of aerial bombardment of Ukrainian cities (Table 1).

**Table 1. Number of destroyed cultural objects and Russian missiles attacks on Ukraine, 2022 (24.02.2022-29.11.2022)**

| | February | March | April | May | June | July | August | September | October | November |
|---|---|---|---|---|---|---|---|---|---|---|
| Destroyed objects of cultural heritage | 19 | 274 | 86 | 73 | 25 | 25 | 8 | 18 | 1 | 0 |
| Number of Russian missiles attacks | 83 | 99 | 106 | 92 | 200 | 262 | 137 | 185 | 287 | 116 |

*Source: own calculation based on open-source newspaper Ukrajinska Pravda, Censor.net and reports of the Ministry of Defense of Ukraine, 2022*

It can be assumed that the decrease in the number of destructions is related to the liberation of significant territories of Ukraine from Russian occupation, as well as the creation of an air defense system.

The table shows the different level of destruction of cultural heritage objects on the territory of Ukraine. The highest indicators are characteristic of the Donetsk region, where settlements were completely destroyed, including Mariupol, Volnovakha, as well as rural areas and small towns.

Despite the location of the front line far in the east and south of Ukraine, cultural heritage sites continue to be destroyed by Russia due to a series of air attacks on populated areas of Ukraine. Attacks are often systemic in nature. For example, the destruction of objects of cultural heritage in Kyiv (teacher's house) or Mariupol (drama theater), Kharkiv (complex of buildings on Svobody Square) have the character of cultural genocide. Such objects are used as university premises, cultural centers, city government administrations, and temporary bomb shelters during missile attacks.

The vast majority of objects that are attacked are historical and architectural objects. For example, in the Donetsk region, out of 98 objects (as of August 30, 2022), architectural objects make up 89 units (MCIP, 2022b). The level of destruction of cultural heritage sites is unknown in the zone of active hostilities. This is the territory of Donetsk, Luhansk, Zaporizhia and Kherson regions.

Reconstruction and restoration of cultural heritage can take place during the cessation of war or its end. However, even after the end of the war with Russia, cultural heritage sites may remain at risk due to a potential Russian attack.

The proposed reconstruction plan of Ukraine envisages more than 850 projects in the directions of recovery and reform of the Ukrainian economy, improvement of financial opportunities for the development of local communities, social policy, etc. The policy in the field of cultural heritage should also be a component of the social and cultural policy of Ukraine.

An important role in the reconstruction and restoration of settlements is the task of specific ministries of Ukraine (regional policy, infrastructure, social policy, etc.). The key role belongs to local authorities.

However, the restoration of cultural heritage must be coordinated with local communities, as well as the services of cultural heritage protection. Involving the community in decision-making on the reconstruction and restoration of cultural heritage should be key.

The proposed project of the Reconstruction Plan of Ukraine "Culture and Information Policy" (2022) provides for the start of restoration works for cultural heritage sites until 2032 (MCIP, 2022c). One of the key issues discussed in this article and proposed for solution is the creation of a single digital register of cultural heritage.

The inconsistency of actions in the field of restoration of cultural heritage monuments is the reason for the regulation of the process by several ministries (Ministry of Regional Policy of Ukraine, Ministry of Culture and Information Policy of Ukraine, etc.).

The project envisages greater decentralization of the management of cultural heritage sites from 2026. For example, countries such as Poland, France, including Ukraine have a centralized system with a clear division of tasks. The proposal to create a decentralized management system can have positive aspects - quick response to needs, allocation of funds, etc. On the other hand, cultural heritage protection policy needs coordination at different administrative levels and between different authorities.

By 2025, the project provides for the creation of a register of destroyed cultural heritage sites, assessment of restoration and creation of appropriate restoration projects. The process of rebuilding the facilities should begin in 2025. By 2032, a system of scientific institutes, organizations for the preservation and protection of cultural heritage should be created.

The financial volume of restoration of cultural heritage is estimated at UAH 10 billion. The main sources of funding for the restoration program should be national and local budgets, charitable assistance, funds from international technical assistance, including from UNESCO, ICOMOS, etc. For these purposes, the Cultural Heritage Restoration Fund should be created with a financing volume of UAH 17.5 billion, and the indicator of the fund's work should be the number of restored objects.

The need to restore cultural heritage should be accompanied by legal support. Codification of legislation in the field of cultural heritage protection (until 2025), protection of the traditional character of the environment (2022-2023) is foreseen. Legal protection of the preservation of the traditional environment is a necessary condition for the restoration of the image of the settlement that existed before the beginning of the full-scale aggression of Russia. Such works are characteristic of the central part of Warsaw, where the value is the traditional historical environment that existed before the beginning of the Second World War.

**Conclusions**

The destruction of cultural heritage sites in Ukraine occurs both sporadically, as a result of missile attacks, and on a larger scale, holistically, in areas of active military operations. In areas periodically occupied by Russians, acts of vandalism occur, such as looting museum collections, destroying library book collections, and cultural centres important to local communities. The urban tissue that creates the cityscape and entire villages with their valuable rural designs are also being destroyed. Total losses, especially related to cultural heritage sites, cannot be determined due to ongoing military operations. Most likely, reconstruction will be a priority for residential buildings, critical infrastructure, and industrial and social facilities that will be necessary for the economic development of the territories. However, cultural heritage has significant social importance and is an element of the country's cultural life. First of all, the restoration and reconstruction of national cultural heritage will be carried out with the support of the Ukrainian government. The problem will remain the reconstruction of objects of local significance, which is the prerogative of local authorities. Analysing the documents of Ukraine's reconstruction, it appears that the reconstruction of objects will be carried out through national support, international organizations, and local communities.

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# SOCIAL PRACTICES OF UKRAINIAN IMMIGRANTS 2014–2022

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**Resume.**
The author presents the results of a sociological study conducted by the scientific departments of sociology and public administration of the National Technical University "Kharkiv Polytechnic Institute" in early 2022. The research was conducted using an Internet survey (N=1170 people). The subject of the study: the process of institutionalization of social practices to meet the basic needs of Ukrainians during the Russian-Ukrainian war (2014-2022). Institutionalization is considered as the process of formation of new social institutions in three aspects: the process of formation and adoption of new social rules by society; the creation of organizational structures that are responsible for the articulation and order of compliance with these rules and constitute the social structure in institutions of standardized behavior; formation of the left masses of subjects in social rules and organized structures. Analysis of social practices of "internally displaced persons" of the first wave of 2014 in Ukraine reveals real signs of the process of institutionalization of social practices. It manifests itself in the settled attitude of positive residents of Ukrainian communities towards "internally displaced persons" and the creation of organizational structures that help "internally displaced persons" to build social satisfaction of basic needs into the hands of practitioners.
**Keywords.** Russian-Ukrainian war, institutionalization, social practices, internally displaced persons.
**UDC: 316.023.6:355.01**

## Introduction

On February 24, 2022, Russian troops carried out a massive attack with the use of heavy weapons on all major cities of Ukraine, trying to "finally resolve the Ukrainian issue", and the war with Ukraine was started. From the first days of the war, Ukrainians began to fight and actively opposed the aggressor. Ukrainians joined the ranks of the Armed Forces of Ukraine or Territorial Defense, began to engage in volunteer activities, and the rest joined the struggle on the economic front, supporting the state with donations of various forms.

The war forced about 13 million people, or a third of the pre-war population of Ukraine, to leave their homes. According to experts, this is the largest displacement of people in Europe since the Second World War. Currently, there are 7.8 million Ukrainian refugees in Europe, of which 4.8 million have received the status of temporary protection. The number of internally displaced persons (IDPs) in Ukraine is 6.5 million [1].

Obviously, the ongoing war in Ukraine concerns everyone, but only a special sociological study provides an opportunity to determine what specific problems each social group has and what social practices it chooses to overcome them. An actual research problem is the analysis of the process of institutionalization of social practices to meet the basic needs of Ukrainians during the war. The relevant research was conducted under the leadership of Doctor of Sociological Sciences, Professor Maryna Biryukova by scientists of the Department of Sociology and Public Administration of the National Technical University "Kharkiv Polytechnic Institute" in June-July 2022.

## Theoretical foundations

The research methodology was the theory of social capital, social practices and social partnership and theory of institutionalism [2, pp. 143-156.]. As the basis of the research methodology of the institutionalization process, we chose the theoretical developments of Ukrainian sociologists E. Holovakha and N. Panina. They see institutionalization as the process of formation of new social institutions in three aspects: 1) the process of formation and adoption by society of new social rules (laws, normative structures, traditions and rituals); 2) creation of organizational structures that are responsible for the articulation and order of compliance with these rules and constitute the social structure of institutionalized behavior; 3) the formation of the attitude of mass subjects to social rules and organized structures, which reflects people's agreement with this institutional order [3, c.6.]. For 8 years, we have had the opportunity to observe all three aspects of the institutionalization of social practices of "internally displaced persons".

**Methodology**

The research was conducted using an Internet survey (N=1,170 people), the sample was random, regional according to the snowball principle. The process of institutionalization was studied by the method of content analysis of documents.

After the large-scale invasion of Russian troops into Ukraine, a third of the country's pre-war population left their homes. At the same time, women and children, the elderly and people with disabilities suffered the most.

**The results obtained**

According to the results of our research, one third of those women who went abroad (32%) did not have children. Among refugee women as of June-July 2022, 4% were mothers with many children, another 14% had two children, and 37% sought temporary shelter from the war abroad with one child.

The analysis of social practices regarding the satisfaction of basic needs during the war showed that Ukrainian refugees (mostly women - 97%) try to rely on their own strength and mind, go their own way, without counting on anyone's help. The average age of Ukrainian refugee women is 36 years old, they grew up in the days of Independent Ukraine, they were brought up on the ideology of a free and independent state, on the example of fighters for its sovereignty and territorial integrity of Ukraine. A sense of self-sufficiency, dignity, understanding of one's own strength, pride for one's nation and one's own state was nurtured in them from early years in the family, school, and vocational educational institution, which is why they choose an independent path to ensure decent living conditions for themselves and their relatives.

On February 24, 2022, with a massive invasion of Ukraine, the Russian Federation resumed the aggressive war against Ukraine that it has been waging since February 2014. Over 8 years of war, Russian aggression resulted in thousands of destroyed lives, destroyed cities, millions of Ukrainian refugees and internally displaced persons. The world community has witnessed torture, rape, executions, forced deportation, abduction, in particular of children, and countless strikes by the Russian military on houses, schools, churches, museums, economy, energy and critical infrastructure of Ukraine.

In 2014, as a result of Russia's annexation of Crimea and the loss of control over part of the territory of the Donetsk and Luhansk regions, a large number of people appeared in Ukraine, who were forced to leave their places of permanent residence and move to other regions of Ukraine. Conventionally, let's call them "internally displaced persons" of the first wave of 2014.

In an interview with Radio Svoboda, the deputy head of the International Organization for Migration (IOM) in Ukraine, Steven Rogers, noted [4] that as of the end of 2022, there were about 5.3 million internally displaced persons in Ukraine. The majority - 55 percent - are women. Every fourth family of internally displaced persons has a person with a disability, almost every fifth family had a child aged one to five years. 70% of internally displaced persons did not have a stable job. From the very beginning and now the main problem for them remains financial insecurity. As of October, last year (2021), only 34% of "internally displaced persons" had a stable job. 20% of people took a worse job, one that was below their qualifications or at a lower level of pay, because there was no better option. Since 2014, despite the challenges of the war, they have tried to find the strength to start life in a new place, open their own business, support others, and raise children. Accordingly, the positive attitude of permanent residents of Ukrainian communities towards "internally displaced persons" grew, which is the first sign of the process of institutionalization of social practices of "internally displaced persons".

According to the results of a survey conducted by the Kyiv International Institute of Sociology [5]. 72% of permanent residents of communities where Ukrainians moved have a positive attitude towards internally displaced persons (IDPs). Only 6% have a negative attitude towards immigrants, and the rest are neutral. 4 out of 5 (81.8%) respondents helped displaced people in their community. At the same time, 77.5% of the displaced people feel a positive attitude towards themselves, only 3% have a negative attitude, and the rest of the displaced people speak of a neutral attitude towards themselves. The majority of permanent residents of the communities (72%) say that they sympathize with the displaced people because they are in a difficult situation. 69.2% of IDPs feel compassion for themselves.

"This is an incredible indicator of the ability of communities to help people. And the mutual positive attitude towards each other, permanent residents of the communities and IDPs demonstrates that in these difficult conditions, a new unified Ukrainian society is being hardened, capable of sympathizing, helping and together overcoming the greatest challenges", said Deputy Minister for Reintegration of the Temporarily Occupied Territories of Ukraine Pavlo Kozyrev.

On February 24, 2022, the military operations started on the territory of Ukraine caused mass displacement of the population, including those who were forced to relocate from Crimea, Donetsk and

Luhansk regions after 2014. They again found themselves in the situation of 2014, started life again in a new place, looked for a source of livelihood, looked for housing and shelter for children, but they already had the experience of such a life, developed social practices to ensure normal living conditions.

A vivid example of the successful social practices of the first wave of "internally displaced persons" in 2014 is the opening by the displaced persons of the Public Organization "Center for Joint Development "Dieva Hromada" in the city of Starobilsk, Luhansk Region in March 2016. The founders of the public organization first engaged in volunteer work alone, then united, implemented several projects aimed at the adaptation of "internally displaced persons" and community activation, and then decided to found a public organization. The main direction of activity of the NGO "Center for Joint Development "Active Community" was chosen regional development "Efficient community - active business" and activation of the community - through socio-cultural projects and creativity, education "Effective team - knowledgeable community", social direction, etc. "Dieva hromada" immediately became one of the active participants in the public life of Starobil region and Luhansk region. The projects implemented by the Public Organization were aimed at creating comfortable living conditions in the city for all residents. In 2017, the public organization implemented 15 projects, held 235 events, which were attended by more than 7,500 people [6]. At the beginning of March 2022, Starobilsk was under occupation. The "Active Community" team helped the city's residents and displaced people from the first days, but then was forced to leave the city. Today, "Dieva hromada" continues its activities in Transcarpathia [7].

Subsequently, the understanding by public activists of Ukraine of the urgency of the issue of assistance to internally displaced persons throughout the territory of Ukraine led to the unification of public organizations. This is the second sign of the process of institutionalization of social practices of "internally displaced persons".

A vivid example of the institutionalization process is the activity of the single coordination center for assistance to displaced persons "IDPs of Ukraine", created in October 2022. Today, more and more partners who are located not only in Ukraine, but also in Poland and the Baltic countries are joining the activities of the public association "IDPs of Ukraine". Helpers in good deeds willingly contact the founders of the public association "VPO of Ukraine", knowing them well from their previous work, which is conducted transparently and is necessarily accompanied by reports on the resources spent. The network of branches of the association "VPO of Ukraine" itself is also expanding. In addition to regional centers, centers are planned to be opened in other large cities - Kryvyi Rih, Bila Tserkva, Boryspil, Oleksandria, Zhovtyh Vody, Kamenskyi. In general, it is predicted that there will be up to 50 of them in Ukraine. The public organization has ambitious plans: by the end of 2023, to support up to a million displaced people. Already now various types of support are provided to more than 100,000 people affected by the war [8].

**Conclusion**

Thus, the analysis of social practices of "internally displaced persons" of the first wave of 2014 in Ukraine reveals real signs of the process of institutionalization of social practices. This is manifested in the strengthening of the positive attitude of permanent residents of Ukrainian communities towards "internally displaced persons" and the creation of organizational structures that help "internally displaced persons" to build an effective business and start their own business.

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# THE COASTAL CITIES AND THEIR WATERS IN A CONTEXT OF SUSTAINABLE DEVELOPMENT

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**Summary.** The paradigm of sustainability is built taking into account the needs of the current generation without threatening the consumption needs of future generations. This applies to the consumption of not only natural but also socio-economic resources. To achieve the goals of sustainable development, it is important to rethink the attitude toward the concept of development, to move away from cost evaluation, and to transform the culture of using natural resources. It is important to realize that the economy is not isolated from the biosphere. Green and blue economies have become powerful tools for achieving the goals of sustainable development, conceptual foundations of road maps for the transformation of traditional economic models into sustainable development models. Actions must be taken to mitigate the climate and adapt to future changes. Since the driving force behind the climate crisis is carbon emissions, 70% of which are emissions from urban activities, it is important to transform cities, paying attention also to what threatens these cities with potential threats and dangers. In the case of coastal cities, the cornerstone is water resources, as they are at the same time a condition for the existing of the cities and the main source of dangers.

**Keywords.** Sustainable development, economic development, blue economy, green economy, coastal cities.

**JEL code (s) O13; Q 25; Q 56; R110.**

## Introduction

Sustainable development is based on economic growth, social welfare and preservation of the biosphere. In accordance with these postulates, 16 goals of sustainable development were formed, which are united by the 17th goal of "strengthening the means of achieving sustainable development and intensifying the work of global partnership mechanisms for the benefit of sustainable development." A significant difference between the Sustainable Development Goals, which replaced the Millennium Development Goals, is a systemic approach that removes the insulating layer from economic, social, and natural processes.

The report examines the issue of coastal cities and the inestimable importance of the water resources of these cities, which are the driving forces of the development of coastal areas and at the same time the main threats to the existence of coastal cities. According to the World Bank, Bangkok, Thailand is the most vulnerable city in the world to sea level rise. Since the flood of 2011, 20% of the city was flooded. In 2005, as a result of Hurricane Katrina, the city of New Orleans (USA) was flooded. Today, 50% of the city is below sea level, while in 1895, 5% of the city was below sea level. Examples of cities at risk of flooding are Venice (Italy), Basra (Iraq), Calcutta (India), which already constantly suffer from floods. If the problems caused by climate change are ignored, all coastal cities will be at risk of flooding.

Understanding the importance of coastal cities as drivers of economic development and social well-being, Barcelona (Spain), Lisbon (Portugal), Panama City (USA) are calling for a dialogue between representatives of the blue economy sectors - fishing, blue energy, biotechnology - and universities to develop the best strategies sustainable development. In Bangladesh, oyster reefs are built from oyster shells to protect the coast from erosion.

An additional problem of coastal cities is the shortage of drinking water, pollution of surface and groundwater, extraction of groundwater and minerals leads to subsidence of cities. For example, Jakarta is sinking 15 times faster than the sea level is rising (Wu et al., 2022).

This work is descriptive and focused on reviewing the issues of sustainable development of coastal cities. The purpose of the study is to highlight the prospects and problems associated with the development of coastal areas in the context of interaction with water resources.

## Methodology

The paper is a review of scientific literature in the fields of social and natural sciences, as well as a number of documents regulating activities at various levels of management regarding sustainable development, green transformation of the economy, actions related to mitigation and adaptation to climate change. The gathering of information was carried out in scientific databases and by researching thematic scientific articles and analysing primary sources. Information provided by specialized organizations engaged in research and policies of sustainable development and adaptation to climate change was also used: the World Bank, the

World Meteorological Organization (WMO), the National Ecological Centre of Ukraine (NECU), the United Nations (UN), the United Nations Environmental Program (UNEP), the Commonwealth of Learning (COL). The research problem was formed by the method of deductive analysis, the logical scheme of which is presented in Figure 1.

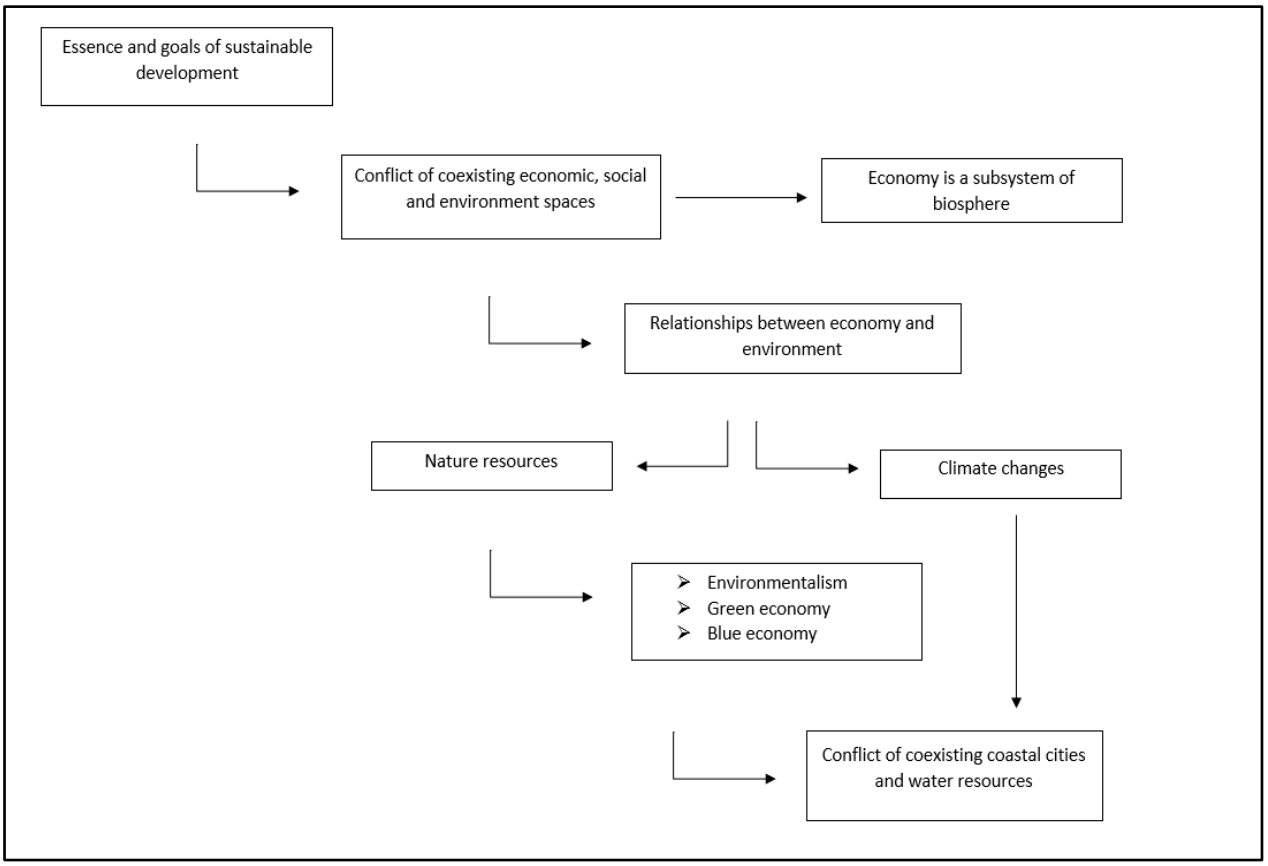


**Figure 1.** Logical scheme of problem research
*Source:* prepared by author

**Theoretical background**

The aim of this study is to highlight the importance of studying the interaction of coastal cities with their water resources in the context of the formation of a sustainable economic system. The tasks of the work are a review of the evolution of the concept of sustainable development, a study of the prerequisites for the development of green and blue economies, an analysis of the aspect of climate adaptation of coastal cities that systematically interact with water resources.

**Results**

In the process of development of the global economic system, a worldview culture was formed regarding the use and management of the planet's resources (Venkatesan, 2022). From the very beginning of the development of Classical Economic Theory, the economy was considered separate from culture and moral and ethical qualities. The result of socio-economic development was the pursuit of profit in the face of infinite human needs and limited resources. The basis of economic growth was the selfish use of resources, which is commonly called rational or cost-effective. The measure of growth became the quantitative assessment of the market value, which was transformed into GDP, which is still used as an indicator of the degree of development. The question of environmental costs was solved by setting the "right prices" for the relevant resources (Daly, 1992).

*Raising the prices of certain goods relative to others may reduce the use of inferior goods relative to better ones, but it cannot solve the problem of absolute scarcity. After all, there are limits to the resources that nature can provide and the pollutants that it can absorb (Daly, 1992).*

Assessment of the state of the environment and human health remained outside of standardized measurements (Hardin et al., 2023). That is, economic growth in classical economics lacks moral guidelines and neglects ethical norms of behaviour (McCloskey, 1996).

*The power of the concept of sustainable development is that it both reflects and evokes a latent shift in our vision of how the economic activities of human beings are related to the natural world an ecosystem which is finite, no growing, and materially closed (Daly, 1996).*

The economy is not an isolated system, but a subsystem of the biosphere (Daly, 1973). All resources used by the economy come from the environment, and all wastes produced are returned to the environment (O'Neill, 2022).

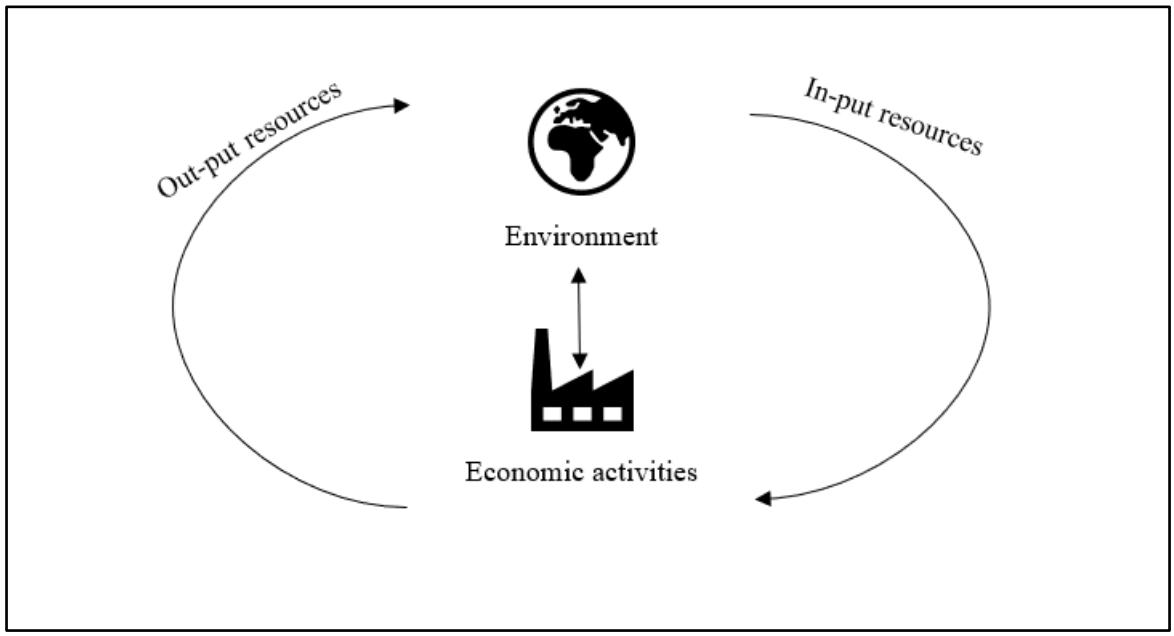


**Figure 2.** Economy as a subsystem of the biosphere
*Source:* prepared by author

The evidence and consequence of such dependence is the greenhouse effect caused by excessive emissions of greenhouse gases. The greenhouse effect keeps the Earth at a comfortable temperature for life, but excessive emissions of greenhouse gases have caused global warming, which has triggered climate change. According to the US EPA, the main sources of greenhouse gas emissions (carbon dioxide $CO_2$; methane $CH_4$; nitrogen oxide (I) $N_2O$; ozone $O_3$; water vapor) are:

- transport – 27% (from the burning of fossil fuels for our cars, trucks, ships, trains and planes);
- electricity generation – 25% (from the burning of fossil fuels, mainly coal and natural gas);
- industry – 24% (from the burning of fossil fuels to obtain energy, as well as greenhouse gas emissions as a result of certain chemical reactions necessary for the production of goods from raw materials);
- commercial and residential buildings – 13% (from fossil fuel burning for heat, use of certain products containing greenhouse gases, and waste management);
- agriculture – 11% (from livestock, for example cows, agricultural soils and rice production);
- land use and forestry – 13% (land can act as a sink (absorbing CO 2 from the atmosphere) or a source of greenhouse gas emissions).

Cities account for more than 70% of global CO 2 emissions, most of which come from industrial and motorized transport systems that use vast amounts of fossil fuels and rely on extensive infrastructure built from carbon-intensive materials (WORLDBANK).

A distinctive feature of the greenhouse properties of carbon dioxide in comparison with other gases is its long-term effect on the climate, which, after the cessation of the emission that caused it, continues by inertia for up to a thousand years. Other greenhouse gases, such as methane and nitrogen oxide, exist free in the atmosphere for a shorter time (WMO). That is why it is important to change the culture of the use of natural capital as soon as possible to minimize the time needed to mitigate climate change. At the same time, it is extremely necessary to take measures for climate adaptation.

The evolution of a moral-ethical and socio-ecological approach to economic development led to the adoption of the paradigm of sustainable development, "... taking into account the needs of the present generation without compromising the needs of future generations", adopted by the World Commission on the Environment in 1987. Economic development with the protection of social and ecological balance was laid as the basis of sustainability. For the first time, the call for creating a low carbon economy was heard in a white paper for the British Department for Trade and Industry, "Our energy future — creating a low carbon economy," in 2003 (Chen & Wang, 2017). The "low carbon economy" refers to the green ecological economy based on low energy consumption and low pollution (Chen & Wang, 2017) was formed.

In parallel with the development of the low-carbon economy policy, there is a "green paradox", according to which the owners of fossil fuels, increasing and accelerating their production, and therefore accelerating global warming, because they are afraid of being deprived of the right to dispose of the property (natural resources) to which they have rights property (Sinn, 2008).

It is climate change and its effects caused by global warming, not warming, that threatens humanity (NECU). Climate change causes sea level rise, which will lead to coastal land loss, changes in rainfall patterns, increased risks of droughts and floods, land degradation, and threats to biodiversity (UN, 2007). These are also frequent and intense heat waves, hurricanes and typhoons, heating and acidification of the ocean. Due to global warming, there are more and more droughts and dust storms in the world, when the wind lifts dust into the air and carries it tens of kilometres. As a result, land fertility decreases, desertification occurs, and local residents suffer from visibility on the streets due to dust and sand. Due to the melting of glaciers, by 2050, many settlements in the world will be washed away by water or completely flooded.

With regard to climate change, the UN Convention on Climate Change was accepted, in which it was stated that developed countries should work together to maintain the concentration of greenhouse gases in the atmosphere at a relatively safe level. In 1997, the Kyoto Protocol was adopted, the participating countries had to reduce greenhouse gas emissions. It entered into force only in 2005.

*...widespread drought, catastrophic rainfall, toppled dynasties, ruined civilizations. Abandoned Maya temples in the Yucatan and the desolation of Angkor Wat, supreme achievement of the Khmer empire, bear witness to climatic change against which royal power and priestly magic proved impotent (Fagan, 2008).*

In 2006, the EU revised the approach to sustainability accepted in 2001, stating that sustainability is "a long-term vision of sustainable development in which economic growth, social cohesion and environmental protection go hand in hand and are mutually supportive". The fight against climate change has become the 13th goal of sustainable development.

Climate change mitigation refers to global interconnectedness and the need to embark on a joint, mutually reinforcing strategy, while adaptation recognizes the need to prepare for future changes and can be implemented at the local level. In addition, mitigation requires changing harmful behaviours that will reduce the impact of current and past actions (Hardin et al., 2023). In the process of developing the green economy as a tool for ensuring sustainable development, the blue economy was singled out as a tool for poverty eradication and sustainable development of coastal countries (Rio+20, 2012). The blue economy paradigm emerged as a framework for sustainable development for developing countries that would help address issues such as equity in marine resource access, development and benefit sharing, offering space for reinvestment in human development and relief from crippling public debt. The blue economy envisioned the same desired outcomes as the Rio+20 green economy initiative: "[achieving] improved human well-being and social justice while significantly reducing environmental risks and environmental scarcity" (UNEP, 2013). It also endorses the same principles of low carbon, resource efficiency and social inclusion, but is based in the context of the developing world and designed to reflect the circumstances and needs of countries whose future depends on marine resources (COL).

If the blue economy is to be the solution to poverty eradication, it must become a generator of water-related jobs. This a priori is a challenge to the ecosystem. Therefore, the tasks of the blue economy are twofold, because economic development, by its very nature, requires the use of natural resources in the interests of man, not nature.

Historically, cities and towns were located on the water shores, turning into ports, transport, industrial and trade hubs. As engines of economic growth and prosperity, coastal cities depend on water to support industry and services, maintain the health of their residents, and enhance and protect the natural environment. Considering that the actual activity in coastal zones takes place either directly on the territory of coastal cities or creates infrastructure facilities that cause the formation of new settlements, it is extremely important to talk about ensuring the sustainability of coastal areas and cities through adaptation to climate change through the

development of grey-green infrastructure (Singhvi et al., 2022) and the development of blue infrastructure (Depietri & McPhearson, 2017).

The development of coastal cities and territories creates an additional burden on blue-green infrastructure, which is not inherent in inland cities. At the same time, the demand for drinking water is increasing and the volume of backwaters is increasing, which pose higher risks to the biodiversity of coastal waters, which in turn suffer from industrial activities, fishing and aquaculture.

Research institutes insist on the need to develop blue-green infrastructure in cities for effective adaptation to climate change, without dividing cities into coastal and inland. The question then arises, if the threats to coastal and inland cities due to climate change differ, can we talk about a unified approach to the adaptation of coastal and inland cities.

Inland cities suffer from the urban heat island (UHI) effect due to the impact on human health, animal and plant life. The UHI effect generated by coastal cities is a separate hazard for coastal waters. Hot surfaces on pavements and roofs transfer excess heat to stormwater, which then flows into storm drains and heats water into streams, rivers, ponds and lakes. An example of this is a case recorded in the state of Iowa, USA by Department of Natural Resources. In August 2001, rains above Cedar Rapids, Iowa, caused a 10.5°C temperature rise in a nearby stream for one hour, resulting in a fish kill affecting approximately 188 fish.

Therefore, the water resources of coastal cities and coastal cities have the following synergistic relationships:

- is a condition of economic development of cities;
- is the main threat to the development and existence of cities;
- is an absorber of the results of urban life.

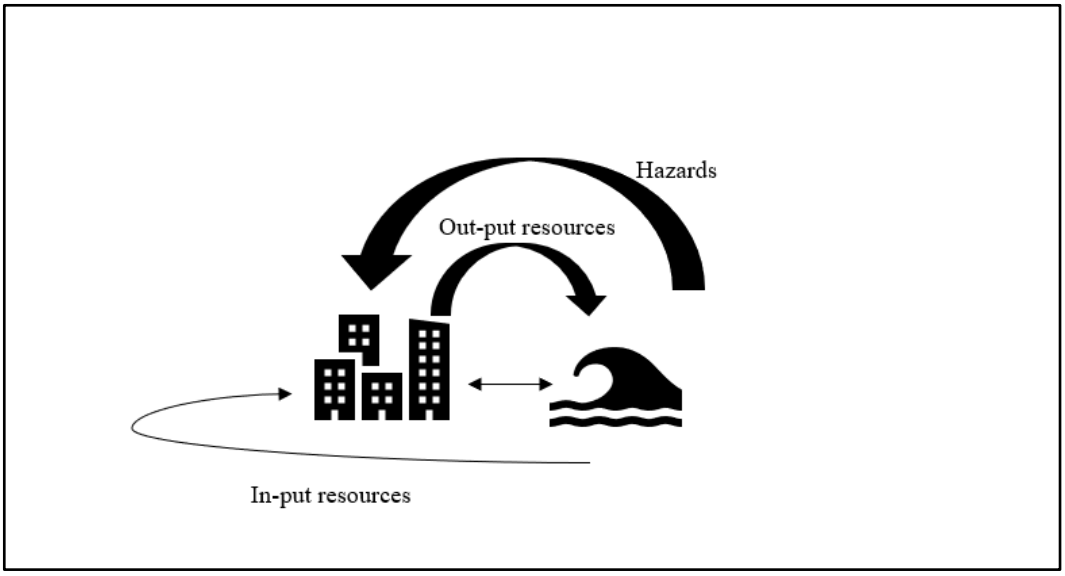


**Figure 3.** Synergistic relationships between coastal cities and its water resources
*Source:* prepared by author

The Commission's communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a new approach to a sustainable blue economy in the EU states that in coastal regions, the development of green infrastructure will help preserve biodiversity, coastal ecosystems and landscapes, enhancing the sustainable development of tourism and the economy coastal regions. This adaptation activity will itself become a new sector of the blue economy.

It is important to understand that the growth and development of coastal cities are critical drivers of change in coastal zones and place high pressure on coastal ecosystems and natural resources through increased use and pollution of natural capital, and at the same time require greater attention to climate change adaptation issues. A separate problem of the existence of cities is their provision of fresh water, which is the basis of the social well-being of cities (Chen et al., 2021).

The European Commission has developed a series of recommendations and models for assessing climate risks, hazards, impacts, vulnerability and adaptation. According to these recommendations, risks to society can be determined. Models for the study of urban systems, combining climate, energy, spatial planning and socio-economic models to study the varying degrees of impact of local climate change on the urban environment.

**Conclusion**

According to the recommendations, the main gaps in the research are local socio-economic and detailed data on urban land use, forecasts that are not focused exclusively on GDP, lack of methodologies that can be transferred between cities. But it is not indicated whether coastal and inland cities should be studied separately, and the use of water resources of coastal cities is not emphasized in the context proposed in these theses. Therefore, climate adaptation of coastal cities and their relationship with water resources of coastal areas is an extremely urgent issue on the way to achieving the goals of sustainable development.

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# INNOVATIVE ANALYTICAL AND STATISTICAL TECHNOLOGIES AS A TOOL FOR FRAUD AND CORRUPTION DETECTION

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**Summary:**
Innovative information technologies, particularly machine learning and artificial intelligence, have become a crucial tool in detecting and preventing fraud and corruption. These technologies can increase efficiency, productivity, and decision-making, as well as improve communication, collaboration, and knowledge sharing across organizations and geographies. The process of implementing innovative analytical and statistical technologies in the field of anti-fraud or anti-corruption can be divided into several stages, including digitalization, open data, digital identification, artificial intelligence and analytics, and the digital economy. Other important technologies for fighting fraud and corruption include blockchain, decentralized data storage systems, big data, GIS, IoT, and voice technologies. However, the use of these technologies must be accompanied by legal frameworks, ethical norms, and strong political and civic support to prevent the creation of a "digital concentration camp".

**Keywords:** digitalization, artificial intelligence, machine learning, occupational fraud, corruption.
**JEL code (s):** D73, O17.

## Introduction

We live in times of an unprecedented surge of interest in innovative information technologies, since 2022 in machine learning and artificial intelligence firstly. These tools have long been a part of everyday life for billions of people. A large number of digital products and services, such as interactive maps, personalized advertising and personal voice assistants, are certainly only the tip of the iceberg. One of the main goals of using innovative information technologies in modern society is to increase efficiency and productivity, as well as to enable better decision-making through access to more accurate and timely information. These technologies also have the potential to improve communication, collaboration, and knowledge sharing across organizations and geographies, as well as to enhance the overall quality of life for individuals through improved healthcare, education, and other services. Additionally, the use of these technologies can help address global challenges such as climate change, resource depletion, and social inequality by enabling more sustainable and equitable systems and practices. But the most crucial area of application of these technologies has been, is, and will be the field of combating fraud and corruption. The use of innovative technologies such as machine learning or artificial intelligence has the potential to revolutionize the way we detect and prevent fraudulent activities and corrupt practices, making it a critical area of research and development. So, the current study is aimed to reveal the essence of modern transformation of anti-fraud or anti-corruption policy caused by an active implementation of cutting-edge information technologies.

## Theoretical background

By corruption, we understand "the misuse of public office for private gain" (Rose-Ackerman & Palifka, 2016), which can have both a material and non-material form. At the same time, misuse is a violation of both formal regulatory and legal institutions, including norms of official behavior and ethics, as well as informalized norms of behavior, ethics and morality.

Fraud is "the use of one's occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization's resources or assets"(*Occupational Fraud 2022: A Report to the Nations*, 2022, p. 6). According to J. Wells (Wells, 2017), corruption is one of the forms of corporate fraud.

Fraud or corruption detection tools are defined as "data processing systems driven by tasks or problems designed to, with a degree of autonomy, identify, predict, summarize, and/or communicate actions related to the misuse of position, information and/or resources aimed at private gain at the expense of the collective good" (Odilla, 2023).

Innovative analytical and statistical technologies we define as:

– in a broad sense – as a set of methods and tools based on the use of mathematical and statistical methods of data analysis in order to identify useful dependencies and regularities in data, increase the efficiency of decision-making and identify anomalies in various spheres of activity;

– in a narrow sense – as a process of using the most advanced methods and technologies of data analysis, such as machine learning, deep learning, neural networks, natural language processing, graph analysis, etc. in order to identify complex dependencies and useful patterns in data. Such technologies also include methods of data analysis in real time, which allow obtaining quick and accurate results of analysis of large volumes of data.

**Methodology**

The study is based on observation and analyzing of official documentation, current legislation, official websites of public authorities and software producers, especially those web resources that directly focus consumers' attention on the possibilities of using their products as a tool for fraud / corruption detection. The study includes analysis of the sphere of business and public administration, analysis of innovative information technologies implementation in compliance activity of business and public entities. The empirical basis for the analysis consisted of materials from the media, examples of successful application of various information technologies for automating anti-fraud or anti-corruption policy, materials from international non-governmental organizations, and so on.

**Results**

The process of innovative analytical and statistical technologies implementation in the field of anti-fraud or anti-corruption can be conventionally divided into several stages (*Artificial Intelligence in International Development: A Discussion Paper*, 2019):

1. Digitalization – information technologies are used in the field of anti-fraud/corruption policy as means of processes automation. For example, deployment of electronic databases, electronic document flow and electronic reporting.
2. Open data – creation of web or application platforms for public access to data on public procurement, budget expenditures, income and property of officials, etc. This made it easier for interested stakeholders (citizens as taxpayers, NGOs representatives, business) to track and identify cases of fraud or corruption.
3. Digital identification – implementing of technologies for the electronic identification of Internet users as a specific natural or legal person in the state, which allows to increase the transparency and traceability of state processes.
4. Artificial intelligence and analytics – widespread implementation of data analytics and artificial intelligence systems and technologies, which allows more effective detection and prevention of fraud/corruption cases, for example, due to the analysis of large volumes of data and the detection of anomalies in the activities of officials and state structures.
5. Digital economy – active developing and implementation of blockchain technologies, which are used for reliable protection against forgeries, manipulations and falsifications, including document circulation, electronic voting and other processes related to anti-fraud/corruption activity.

The analysis of scientific thought concerning the problem of innovative analytical and statistical technologies as a tool for fraud and corruption detection allows us to characterize it as a scientific direction focused on practical implementation of the cutting-edge technologies (artificial intelligence and machine learning firstly) in the field of state governance quality control (*Managing Machine Learning Projects in International Development: a Practical Guide*, 2022; Paul, Jolley, & Anthony, 2020).

Machine learning and artificial intelligence are two closely related but different concepts in computer science. In a general sense, artificial intelligence is a field of computer science that seeks to create machines that can operate with human-like intelligence. Machine learning is one of the technologies used to create such machines (*Machine Learning Applications for Accounting Disclosure and Fraud Detection*, 2021).

More specifically, machine learning is a methodology that allows computers to learn from existing data without using explicit programming. Instead of a person writing a program that solves a particular task, machine learning algorithms are used to teach the computer about certain patterns in the data. The computer can use this information to make decisions or solve problems that it has not seen before.

Artificial intelligence, on the other hand, is a more general concept that encompasses all technologies aimed at creating computer systems that can act intelligently, that is, perceive, process and use knowledge and solve tasks that require human intelligence. Artificial intelligence technologies may use machine learning techniques, but may include other approaches such as expert knowledge systems, knowledge-based problem solving, and neural networks (Russell & Norvig, 2022).

Both concepts are used in various fields, including the search for fraud or corruption, where machine learning can be used to analyze large amounts of data, and artificial intelligence can be used to develop systems that can make decisions based on this analysis.

In addition to the technologies of artificial intelligence and machine learning, the use of the following information technologies is necessary for a successful fight against fraud and corruption (*Artificial Intelligence in International Development: A Discussion Paper*, 2019; *Artificial Intelligence Technology*, 2023):

1. Blockchain is a technology that can ensure transparency and irreplaceability of information. It can be used to provide electronic voting systems, agreements, contracts and to protect them from falsification.
2. Decentralized data storage systems – they allow data to be stored without centralized management, which provides additional protection against unauthorized access and data changes.
3. Big Data – data can be used to create predictive models of fraud/corruption schemes, identify key factors contributing to fraudulent behavior, and monitor the dynamics of fraud/corruption processes.
4. GIS – such technologies allow the use of spatial data for identification of connections between edges on the map.
5. Internet of Things (IoT) – can be used for data collection, monitoring and control of key facilities such as public buildings, roads, transport, etc.
6. Voice technologies and speech recognition – can be used to create voice recognition systems and further automate government processes.

Despite all the advantages of implementing innovative analytical and statistical technologies as a tool for combating fraud and corruption in the state, it is important to note that the use of these technologies must be accompanied by a legal framework, ethical norms, strong political and civic support. Otherwise, these technologies can become the basis for creating a "digital concentration camp".

**Conclusion**

The implementation of innovative analytical and statistical technologies, particularly machine learning and artificial intelligence, is crucial in combating fraud and corruption in the state. The process of implementation can be divided into several stages, including digitalization, open data, digital identification, artificial intelligence and analytics, and the digital economy. Other important technologies for fighting fraud and corruption include blockchain, decentralized data storage systems, big data, GIS, IoT, and voice technologies. However, it is essential to accompany the use of these technologies with a legal framework, ethical norms, and strong political and civic support to prevent the misuse of these technologies. The future of combating fraud and corruption lies in the successful implementation of these technologies with ethical and legal guidance.

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# SECTION
# EDUCATION AND CREATION OF INNOVATION IN CHILDHOOD

## THE EXPERIENCES OF COLLABORATION AND CRITICAL THINKING DEVELOPMENT IN HIGHER EDUCATION: THE ASPECT OF A COLLABORATIVE INTERNATIONAL NETWORK

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**Summary**

This abstract presents part of a study carried out as part of the Erasmus+ KA2 Capacity Building in Higher Education Project on Teacher Training in the specialization on life and information technology skills/21st TM (EAC/A03/2018), which involved project partners from 6 Asian universities and 2 universities in the European Union. This qualitative study (focus group) aimed to uncover the perspectives of the collaborating international universities, researchers, and administrators on the aspects of improving collaboration and critical thinking education in HE. The qualitative study revealed that the focus of academic activities (one of the six priority competencies) of all universities participating in the study is on the development of critical thinking and collaboration. The results of that study revealed the importance of close networking between teachers and administration in creating modern educational environments; enabling teachers to update study programs in which students can analyze, investigate, and discuss in the group, prepare team-creative works, etc.

**Keywords:** development of collaborating and critical thinking, a high education, a collaborative network.

**JEL code (s):** 123

### Introduction

A rapidly changing world and the challenges of global education call for a constant review of educational priorities, objectives, and organizational features at all levels of education. The didactics of higher education institutions are no exception, as a change in the organization and delivery of study programs, which are emerging to respond to the latest scientific discoveries, innovations that are constantly entering the labor market, the problems that arise in modern societies, and the personal expectations of students. Changes in higher education curricula are brought about by researchers, lecturers, students, social partners, etc. These changes need to be not only effective but also sustainable, so an important aspect of change management is the creation and development of a co-creative network involving all stakeholders in the change. Another important aspect is the possibility of sharing good practices, co-creating, discussing, and sharing the most effective didactical findings in the organization and delivery of studies. The Erasmus+ KA2 Capacity Building in Higher Education Project on Teacher Training in the specialization on life and information technology skills/21st TM (EAC/A03/2018) aims to develop transferring knowledge, best practices, and experience on innovative and ICT-based teaching methodology on 21st skills acquisition from HEIs. The project integrates those skills in the teachers' educational programs for the teachers to be effective in the 21st century. Developing or updating curricula requires a concentrated (joint) effort on the part of both the staff administering the studies and the teachers. Therefore, the problem of this study is to reveal the characteristics of sustainable collaboration, and networking between teachers and administrators to improve students' collaboration and critical thinking skills.

### Theoretical background

Networking is increasingly important in today's education, not only for the design and development of business and scientific innovations, but also for the revision and updating of general education content and methodology, vocational training programs, and higher education didactics (European Commission, 2017; CHEGG&CHEPS, 2020; de Wit & Altbach, 2020). Networking is a form of cooperation and partnership that connects individuals, groups, and organizations with common goals and enables them to exchange resources, and information and increase their efficiency (Carson, Gilmore & Rocks, 2004). Employers, business and science representatives, and students are invited to collaborate in the field of higher education (Hill, 2020). Students, HEI teaching staff, researchers, and administrators are invited to collaborate in making the most appropriate HEI didactic decisions for each study program (CHEGG&CHEPS, 2020; Huisman et al., 2021).

In the context of a single study program, this communion is sufficient. However, the support of a collaborative network (international collaboration network) is important when analyzing and modernizing the educational environments of multidisciplinary universities, and when introducing didactic innovations in HEIs (Chen et al, 2019; de Wit & Altbach, 2020). Networking is about finding contacts, making useful acquaintances, and exchanging information and experiences with people who share similar goals and interests (Van Waes, 2017; Hill, 2020). In this case, researchers, lecturers, administrators, and students from different fields (including pedagogy) work closely together and interact in the field of development of High Education Didactic (Bennet & Burke, 2018; Anderson et al., 2020; Kinchin, 2022). Such a collaborative network is the most effective way of introducing didactic innovations at universities. Some of the most common issues addressed by such a network of collaborating HEIs are: organizing student-centered learning, inquiry-based learning, project-based learning, creating interactive environments in universities, implementing appropriate teaching, and learning strategies, and so on (Chen et al., 2019; Gravett, Yakovchuk & Kinchin, 2020; Laye et al., 2020; Crawford & McKenzie, 2022). Significantly that the necessary changes in higher education didactics analyzed by researchers identify specific student abilities and competencies, the development of which must be ensured in higher education, for example, student's ability to create partnership networks and participate in professional networks, critical thinking, social engagement, and others (Hodgson & McConnell, 2019; Hortiguela-Alcala et al., 2019; Gravett &Winstone, 2022).

In higher education, when developing students' critical thinking, emphasis is placed not only on the content of study subjects, which encourages students to analyze, interpret, create, and reflect, but also on the university's co-creative, collaborative context, which can only be ensured by the university's created and continuously developed staff (administration, researchers, educators, social partners) network. A collaborative network of learners and the process of networking is as well as a prerequisite for the development of collaborative competence. (Van Waes, 2017; Ma et al., 2019; Hill, 2020; Frank & Meyer, 2020; Archer-Kuhn et al., 2020; Irvine, 2020; Davidson, A. B., Addison, C. J., & Charbonneau, J. (2022).

**Methodology**

During the implementation of the Erasmus+ KA2 Capacity Building in Higher Education Project on Teacher Training in the specialization on life and information technology skills/21st TM (EAC/A03/2018) focus group interviews were conducted with project partner university teams. The choice of this method was based on the desire to understand and explain the meanings, beliefs, and experiences that influence the feelings, attitudes, and behavior of individuals (Wilkinson, 2004; Nyumba et al., 2018). The focus group discussion took place during the meeting of one of the project partners (2023). 37 scholars, teachers, and administration representatives from 7 universities (two universities each from India, China, Cambodia, and Greece) participated in the focus group. Each international university was represented by university administration staff, teachers, and scholars. It should be noted that in this discussion, most of the participants represented the fields of technology, engineering, and social sciences (not pedagogic science). Only 2 university teams had competence in teacher training. During the discussion, the moderators invited representatives of higher education institutions to discuss and identify the most significant competencies of the 21st century in their university community, to identify the most important aspects of critical thinking and collaboration education in their higher education institutions, to discuss the challenges and achievements of their implementation, and to share an accumulated good experience. During each discussion, participants were introduced to the main topic of the discussion, an introductory question, and transitional and substantive questions, and the discussion was summarized and concluded (Nyumba et al., 2018). Qualitative content analysis was used to process the research data, which helped to cover the obtained information, divide the data into groups and categories and draw conclusions based on this (Creswell, 2009; Nyumba et al., 2018).

**Results**

The international teams of university lecturers identified and discussed the competencies relevant to the 21st-century student participants in the study. In a focus group discussion, the twelve relevant competencies for the universities were analyzed: communication and cooperation, productivity and initiative, critical thinking and creativity, flexibility, media and information literacy, technological literacy, social skills, and leadership. The participants (administrators, and lecturers) highlighted the importance of each of them in the organization of studies. Participants of the discussion stressed the importance of defining the most relevant student competencies in the context of the study program so that the main factors for the development of competencies (educational environment, methods, tools, etc.) can be identified within the teaching teams. The analysis of the participants' opinions led to the identification of six competencies that are most relevant for a collaborative network: critical thinking, collaboration, creativity, communication, information literacy, and

technology. Focus group participants highlighted the development of critical thinking and collaboration as one of the most important competencies that should be given special attention in higher education institutions. The discussions focused on the structure of the study subject, its essential parameters, and conditions for the development of critical thinking and collaboration competencies in higher education. As the informants pointed out, it is important to provide activities (tasks, methods) in study subjects that should be oriented towards learning, the organization of learning, and active student engagement in exploration. A precise description of the guidance of the study subject program is therefore important because sustainable decisions important for the development of critical thinking (as well as for the development of other significant competencies) are made in the network of all study program executors. In the discussion, participants raised/identified various conditions that are important for sustainable and long-term didactic solutions. The results of the study revealed that the following were important for the participants: close cooperation between the lecturers and the administration in creating modern educational environments; identifying didactic priorities for the implementation of the study programs; enabling lecturers to update the study programs, where students can analyze and discuss, investigate, and interpret and discuss with scholars on research data, prepare team-creative works and evaluate them in a reasoned way.

**Conclusion**

The participants of the focus groups emphasized the development of cooperation and critical thinking as the main competencies, the development of which should be given special attention in their universities. During the discussions, it was determined a few important conditions for the development of these competencies are to explain the structure of the study subject to the entire university community, to prepare a clear guide for the preparation of the study subject for teachers, and to specific methodological recommendations for the development of critical thinking and collaboration (methods, tools, etc.). It is important that the participants of the international cooperation project emphasized the importance of the cooperation network in universities in creating a sustainable and inclusive modern learning environment in universities.

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# CREATION OF INNOVATION IN THE SUSTAINABLE SCHOOL THROUGH THE EXPLOITATION OF STEAM EDUCATION AND ROBOTICS

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**Summary**

The present study focuses on the implementation of innovative international project between European schools. The main research topic of this effort is to investigate the existence of a positive correlation between the implementation of collaborative outdooring activities with the effortless approach of the Sustainable Development Goals (SDGs). Based on the Activity Theory and the belief that the natural, social and cultural environment is an important source of knowledge, the organized learning process includes formal, non-formal and informal types of education. The pedagogical innovation of the project is determined by the exploitation of Science, Technology, Engineering, Arts and Mathematics teaching (STEAM Education) and educational robotics as methodological tools. This empirical research is completed with the process of the dissemination of the learning outcomes to the educational and extended community.

**Keywords:** STEAM education, robotics, outdoor learning, sustainable development, early childhood education

**JEL code:** I20

## Introduction

The application of innovative methods in the learning process is seen as a crucial aspect of scientific researches. This case study concerns the collaboration of European schools from six different countries: Estonia, Greece, Latvia, Lithuania, Poland and Romania, in the context of their participation in a e-Twinning project, entitled "Winter is Fun". According to the opinion that "there are no inappropriate weather conditions, but inappropriate clothing", the pedagogical innovation of the project lies in the fact that the learning modules of the curriculum, related to early education are approached by organizing activities outside the classroom, especially in the winter.

This effort uses as theoretical framework the principal element of Cultural Historical Activity Theory (CHAT). Based on the Activity Theory and the belief that the natural, social and cultural environment is an important source of knowledge, the organized learning process includes formal, non-formal and informal types of education.

The main research topic is to investigate the existence of a positive correlation between the expansion of the learning environment outside the classroom and the implementation of collaborative outdooring activities with the experiential approach of the Sustainable Development Goals (SDGs). Particularly, emphasizing on selective learning areas of the sustainable education, the project focuses on the quality of education and reinforces the means of cultivation the local and global partnership for sustainable development.

During the planning and implementation phases, action research and field research are applied. The pedagogical innovation of the project is determined by the exploitation of Science, Technology, Engineering, Arts and Mathematics teaching (STEAM Education) and educational robotics as methodological and mediating tools.

The progress of the research includes qualitative and quantitative collection data methods and is completed by evaluating and disseminating the learning outcomes of the project to the educational and extended community.

## Theoretical background

The theoretical background of the project is based on the Cultural Historical Activity Theory (CHAT) and the belief that learning is the result of interaction with the natural, sociocultural and historical environment of the students. In this framework, the planned activities are structured according to the principal components of the triangle model of CHAT theory (Figure 1), including the Subject, the Object, the Mediating and Methodological tools the Rules, the Community, the Division of Labor and the Outcomes of the activity system adapted from Engeström (1987).

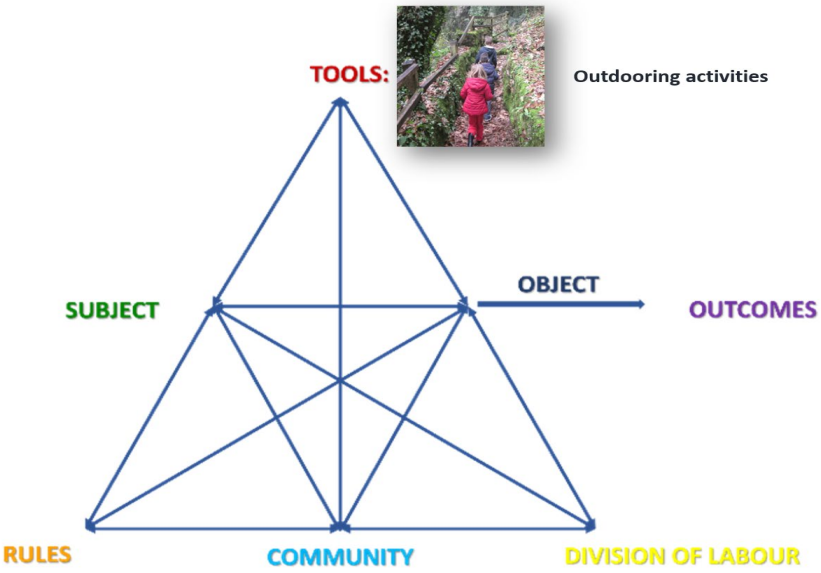


**Figure 1.** Triangle model analysis of CHAT theory (Engeström, 1987)

**Methodology**

During the planning and implementation phase are applied action research and field research (Cohen L. – Manion L., 1994). The socio-cultural approach of Science teaching (Plakitsi, 2012), technology, educational robotics, engineering, arts and mathematics are utilized as methodological tools. This action research organizes STEAM education as an activity aimed at the sustainable development (Plakitsi, 2018). More specifically, the children discover through play and exploration activities their environment, gather information and create maps of the environmental and cultural path of their local region. In this context, Nature is used as an extended classroom (Learn about Forests, 2021), while the Sustainable Development Goals are approached experimentally.

This effort is also based on the conceptual framework of Creativity in Early Years Science Education Erasmus+ project that identifies a number of pedagogical synergies between Inquiry Based Science Education and Creativity including: play and exploration; motivation and affect; dialogue and collaboration; questioning and curiosity; problem-solving and agency; reflection and reasoning; teacher scaffolding and involvement; assessment for learning (CEYS, 2017).

In the developmental phase, proposed and collaborative activities are submitted by the pedagogical team through brainstorming and democratic procedures (Topoliati, 2015). It is worth to be mentioned that parents, local authorities and community are implicated in the action planning and materialization of activities.

The action planning of the innovative outdooring activities is organized according to the description, which is presented in the following diagrammatic form (Figure 2).

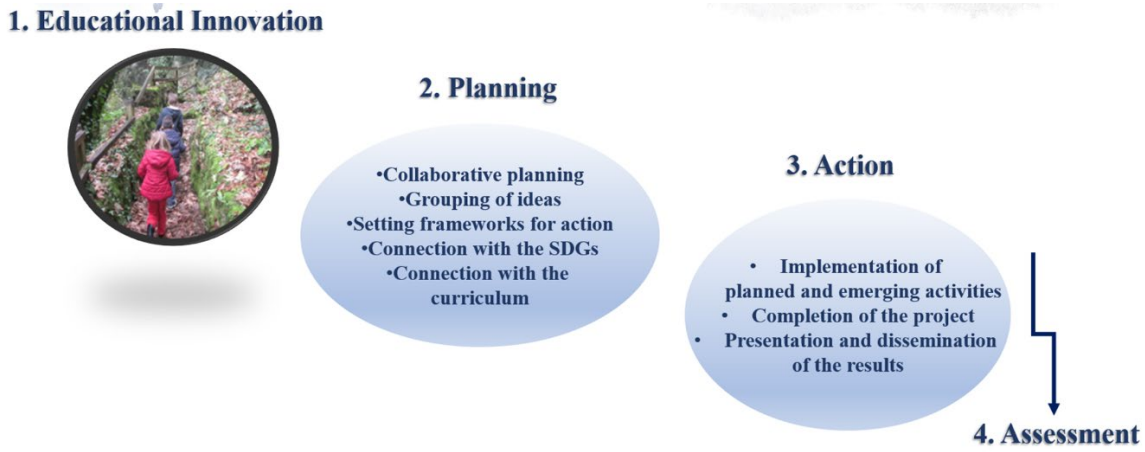


**Figure 2.** Description of the Action Planning

**Results**

The students, as active members of their learning community interact, communicate and gather information through indoor and outdoor activities. They make three-dimensional maps with the reuse of

recycled materials in which is reflected the acquired knowledge during the field study. Subsequently, they create on the models their first algorithm by coding floor robotic systems such as Bee-bot and LegoWedo2.0 (Figure 3). Finally, they share their experiences through the exploitation of the technology and Web.2.0 tools (eAlbum, eBook, digital story) in the e-Twinning platform.


**Figure 3.** Dimensional map of the local area

According to the results that are collected through qualitative and quantitative data methods, the outdooring activities and the exploitation of STEAM education and robotics encourage children to cultivate selective sustainable development goals and discover all the learning areas of the curriculum, related to early childhood (Ministry of Education, 2021). In particular, through the use of the methodological tools are approached with playful activities:

- the goals of the sustainable development, focusing on the topics of sustainable cities and communities, climate change, peace and justice, partnerships for goals;
- the local history and culture, "adopting" the post-Byzantine monuments of the region;
- the social/personal and emotional development, cultivating intercultural skills, democratic and global citizenship, interaction and collaboration with European Schools;
- the written and oral speech, enriching students' vocabulary;
- computational and algorithmic thinking, promoting the robot coding;
- expressive arts, creating the dimensional map and robotic models;
- physical development, implementing outdooring activities.

**Conclusion**

The results are consistent with the corresponding research question. Particularly, the implementation of social innovative practices in teaching and learning, such as the openness of the school to the community, the socio-cultural approach of STEAM education and robotics support preschool children and facilitate the approachment of the sustainable development goals.

It is essential to note that through the implementation of social innovative projects the school was awarded United Nations, Educational, Scientific and Cultural Organization (Hellenic National Commission for UNESCO), honored as Sustainable, Ecological and ICT oriented School, awarded with National and European Quality labels from the eTwinning community, with the European Label of Code Week Schools and as "Ambassador School of the 17 Sustainable Development Goals".

Based on the positive results of the research, it is planned the extended dissemination of this effective practice.

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# SECTION
# SOCIAL INNOVATIONS IN MANAGEMENT

## SUSTAINABLE BLUE MUSSEL PRODUCT PROMOTION ASPECTS IN THE BALTIC SEA REGION

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**Summary**

Marketing aspect is important to promote blue mussel products in the Baltic Sea region. Connecting the existing scientific environment together with consumer's environment by raising the awareness of the use of the natural resources and their connection with the common eco-system and participation in the food chain will allow to achieve sustainability more broadly. The increasing interest in ethical consumption among consumers refers to some appropriate grounds such as heightened media coverage. Also, inhabitants have started to use marine products, which traditionally were not widely and commonly used in certain area. Mussel farmers and scientists are applicable to explain economic and ecological values of sustainable mussel farming.

**Keywords** mussel farming, sustainability, survey, the Baltic Sea region
**JEL code (s)** L26, M31, Q01

### Introduction

To achieve sustainability, it is important to do farming responsibly. While working and creating long-term mutual business relationships with either business players or product consumers, the common goal is to reshape the consumer society driven behaviour into environmentally responsible user behaviour preserving local divergence.

The responsible blue mussel customer nurturing starts with reaching them in social platforms, involving in activities and explaining specific information. Connecting the existing scientific environment together with consumer's environment by raising the awareness of the use of the natural resources and their connection with the common eco-system and participation in the food chain will allow to achieve sustainability more broadly.

The increasing interest in ethical consumption among consumers refers to some appropriate grounds such as heightened media coverage. Also, inhabitants have started to use marine products, which traditionally were not widely and commonly used in certain area.

The following research methods were used in the research: studies of scientific publication, survey of different stakeholders in mussel farming.

Based on experts' survey results indicated that marketing aspects are important to promote mussel farming.

Mussel farmers and scientists should clarify economic and ecological values of sustainable mussel farming.

### Theoretical background

An alternative mitigation strategy to improve sustainability and potentially increase profitability has been researched on an innovative experimental level (Ridler et al., 2007) with findings for further strategic directions in aquaculture farming development where significant part is devoted to blue mussel farming and also admitting that consumers' willingness is important to sell the product.

Evaluation of Mediterranean mussel producer's knowledge about environmental factors, information about climatical and non-climatical pressures were analysed by Rodrigues at al. (2015) research where is analysed influence of climate change on blue mussel farming which is recently very topical (Giangrande et al. 2021, Bayraktarov et al. 2016) for researchers in many countries around the globe.

Rossolini et al. (2021) discussed regard using positive or negative frames, campaign goals are presented to focus attention on either the potential of the entrepreneurial project to provide environmental benefits or its potential to reduce negative effect. Framework of sustainable marketing has been highlighted by Gordon et al. (2018) by combining critical marketing, social marketing and green marketing (Griskevicius, Tybur, Van den Bergh, 2010) developing new approaches for production realisation possibilities.

Ecological value can be both intrinsically and extrinsically motivated, and oriented towards the self and others. The value can be complemented by adding explanatory information of sustainability which is based on researchers' documentation. Ecological value is relevant where there is an environmental imperative because of links between consumption and potential harm to the natural environment (Koller, Eloh, Zauner, 2011) used also in "green" marketing. It recognizes the growing importance that consumers play on the impact of

consumption behaviour and experience on the natural environment (Peattie, Belz, 2010) which serves as innovative findings for sustainable marketing. End-use market is important factor affecting development of mussel farming in the Baltic Sea. (Ozolina, Sloka, 2019). Although, Koller and his colleagues (2011) have argued the case for considering the concept and for development of a scale measuring ecological value, scholars acknowledge that further empirical research on this value dimension would be useful (Zauner, Koller, Hatak, 2015) for mussel farming as well as organisation of social marketing (Gordon et al. 2018) considering innovative marketing approaches. Consumers are expressing their interest in ethical consumption aspects as discussed by the researchers Bray, Johns, Kilburn (2011).

In the Baltic Sea, the farmed blue mussel is smaller and has thinner shell (Žilinskaitė, Blicharska, Futter, 2021) in comparison with research findings researched and concluded by scientists Remane and Schlieper in 1971, Kautsky and his colleagues (1990) reflecting findings in blue mussel production in the North Sea; and previous research confirms that blue mussel are suitable for animal feed.

Knowledge and innovation have been indicated as the main drivers of European economy, and "the sea and the coasts are drivers of the economy", therefore it is necessary to unlock the potential of the blue economy (The European Commission, 2021) to achieve smart and sustainable growth of Europe (2010). The sustainable development of the blue economy should bring economic and non-economic benefits for coastal communities in the European Union (2021) but also in other countries.

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**Methodology**

Experts survey was organized to analyse the development possibilities of mussel farming in the Baltic Sea and marketing aspect was indicated as important factor affecting development of mussel farming in the Baltic Sea region.

Experts were invited from Denmark, Estonia, Germany, Sweden, Latvia.

For data analysis the indicators of descriptive statistics were used; the comparison of the results shown by equality of arithmetic means for two independent groups were analysed by t – test as well as for analysis of arithmetic means for more than two groups it was applied analysis of variance – ANOVA, for deeper analysis also factor analysis and correlation analysis were used.

**Results**

The experts were invited to set the payment in euros per year by one inhabitant for improving the state of the environment in the Baltic Sea.

**Table 1. Distribution of expert evaluations about payment for improving the state of the environment in the Baltic Sea**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 3 | 10,7 | 10,7 | 10,7 |
| | 3 | 1 | 3,6 | 3,6 | 14,3 |
| | 5 | 5 | 17,9 | 17,9 | 32,1 |
| | 10 | 7 | 25,0 | 25,0 | 57,1 |
| | 15 | 1 | 3,6 | 3,6 | 60,7 |
| | 50 | 1 | 3,6 | 3,6 | 64,3 |
| | 100 | 6 | 21,4 | 21,4 | 85,7 |
| | 365 | 1 | 3,6 | 3,6 | 89,3 |
| | 1000 | 2 | 7,1 | 7,1 | 96,4 |
| | 5000 | 1 | 3,6 | 3,6 | 100,0 |
| | Total | 28 | 100,0 | 100,0 | 28 |

*Source: Author's conducted survey, n=28*

The results indicated that the most of experts set the payment for improving the state of the environment in the Baltic Sea 10 euros per year by inhabitant. The second most frequency answer was 100 euros per year.

The payment for improving the state of the environment in the Baltic Sea and marketing and end-use market factor affecting mussel farming development in the Baltic Sea was analysed comparing with consumption of mussel withing last 12 months.

**Table 2. Main indicators of descriptive statistics of expert evaluations regard consumption of mussel over the last 12 months**

| Consumption of mussel over the last 12 months | | Evaluation of marketing events as factor affecting development of mussel farming* | Role of end-use market as factor affecting development of mussel farming* | Payment for improving environment in the Baltic Sea, EUR |
|---|---|---|---|---|
| 0 | Mean | 6,22 | 6,89 | 171,3333333 |
| | N | 18 | 18 | 6 |
| | Standard Deviation | 2,238 | 2,587 | 405,96880011 |
| 1 | Mean | 7,2 | 9,2 | 25,0000000 |
| | N | 10 | 10 | 6 |
| | Standard Deviation | 1,549 | 1,135 | 36,87817783 |
| 2 | Mean | 7 | 7,33 | 1203,2000000 |
| | N | 6 | 6 | 5 |
| | Standard Deviation | 1,789 | 2,422 | 2165,73744946 |
| 3 | Mean | 6,25 | 8,25 | |
| | N | 4 | 4 | |
| | Standard Deviation | 2,5 | 0,5 | |
| 4 | Mean | 10 | 10 | 25,5000000 |
| | N | 1 | 1 | 2 |
| | Standard Deviation | . | . | 34,64823228 |
| 5 | Mean | 9,5 | 9,5 | 55,0000000 |
| | N | 2 | 2 | 2 |
| | Standard Deviation | 0,707 | 0,707 | 63,63961031 |
| 6 | Mean | 5,67 | 5,33 | 100,0000000 |
| | N | 3 | 3 | 1 |
| | Standard Deviation | 3,215 | 3,786 | . |
| 7 | Mean | 9 | 9 | 1,0000000 |
| | N | 1 | 1 | 1 |
| | Standard Deviation | . | . | . |
| 8 | Mean | 8 | 10 | 100,0000000 |
| | N | 1 | 1 | 1 |
| | Standard Deviation | . | . | . |
| 10 and more | Mean | 7,4 | 9,6 | 143,7500000 |
| | N | 5 | 5 | 4 |
| | Standard Deviation | 2,51 | 0,894 | 153,48045478 |
| Total | Mean | 6,88 | 7,94 | 290,3928571 |
| | N | 51 | 51 | 28 |
| | Standard Deviation | 2,16 | 2,344 | 959,08140230 |

*Source: Author's conducted survey, n=51; 25 * Evaluation scale 1-10, where 1-lowest evaluation; 10-highest evaluation*

The analysis of arithmetic means of the evaluations revealed that those experts who have not use consume mussel over the last 12 months were set higher payment for improving environment in the Baltic Sea that those who have not consumed mussel within last 12 months.

The mean analysis revealed that those experts who have not use consume mussel over the last 12 months evaluated the marketing events (mean 6.22) and end-use market (mean 6.89) as factors affecting the development of mussel farming in the Baltic Sea lower that those who have consumed mussel over the last 12 months (marketing events mean 6.88 and end-use market 7.94).

The lowest evaluation of marketing events and end-use market as factors affecting the development of mussel farming obtain those who consumed mussel 6 time per year (marketing events mean 5.67 and end-use market 5.33).

**Table 3. Results of correlation analysis based on experts' evaluations on factors affecting mussel farming development in the Baltic Sea Region**

| | | Marketing events | Tax | End-use market | Environmental pollution | Consumption of mussel over last 12 month | Payment for improving environment |
|---|---|---|---|---|---|---|---|
| Marketing events - factors affecting mussel farming development | Pearson Correlation | 1 | 00,105 | 0,510** | 0,245 | 0,106 | -0,306 |
| | Sig. (2-tailed) | | 0,595 | 0,006 | 0,209 | 0,592 | 0,114 |
| | N | 28 | 28 | 28 | 28 | 28 | 28 |
| Tax - factors affecting mussel farming development | Pearson Correlation | 0,105 | 1 | 0,163 | 0,182 | 0,298 | 0,139 |
| | Sig. (2-tailed) | 0,595 | | 0,398 | 0,346 | 0,117 | 0,473 |
| | N | 28 | 29 | 29 | 29 | 29 | 29 |
| End-use market - factors affecting mussel farming development | Pearson Correlation | 0,510** | 0,163 | 1 | 0,034 | 0,415* | -0,253 |
| | Sig. (2-tailed) | 0,006 | 0,398 | | 0,863 | 0,025 | 0,185 |
| | N | 28 | 29 | 29 | 29 | 29 | 29 |
| Environmental pollution - factors affecting mussel farming development | Pearson Correlation | 0,245 | 0,182 | 0,034 | 1 | 0,362 | 0,148 |
| | Sig. (2-tailed) | 0,209 | 0,346 | 0,863 | | 0,054 | 0,444 |
| | N | 28 | 29 | 29 | 29 | 29 | 29 |
| Consumption of mussel over last 12 months | Pearson Correlation | 0,106 | 0,298 | 0,415* | 0,362 | 1 | -0,183 |
| | Sig. (2-tailed) | 0,592 | 0,117 | 0,025 | 0,054 | | 0,342 |
| | N | 28 | 29 | 29 | 29 | 29 | 29 |
| Payment for improving the state of the environment | Pearson Correlation | -0,306 | 0,139 | -0,253 | 0,148 | -0,183 | 1 |
| | Sig. (2-tailed) | 0,114 | 0,473 | 0,185 | 0,444 | 0,342 | |
| | N | 28 | 29 | 29 | 29 | 29 | 29 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | | | | |

*Source: Author's conducted survey, n=29*

Correlation analysis does not revealed significance between payments for improving environment in the Baltic Sea and other factors.

Correlation analysis revealed significance regard consumption of mussel farming over the last 12 months and end-use marketing as factor affecting mussel farming development in the Baltic Sea.

Correlation analysis revealed significance regard end-use market and marketing events as factor affecting mussel farming development in the Baltic Sea.

**Conclusion**

The experts who have not consumed mussel over the last 12 months and experts who consumed mussel 6 times per year over the last 12 months evaluate end-use market and marketing aspects as less important factors affecting mussel farming development in the Baltic Sea. And other experts evaluated higher end-use market and marketing factors.

The experts who consumed mussel less 3 times per year indicated higher payments for improving the state of the environment in the Baltic Sea.

It is important to clarify ecological and economical value for improving the state of the environment in the Baltic Sea to obtain society, and further research could indicate more wider society viewpoint.

Mussel farmers and scientists should clarify economic and ecological values of mussel farming.

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# FACTORS SHAPING INDIVIDUAL RESILIENCE-RESEARCH INSIGHTS

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**Summary**

Participation in the conference is intended to present the results of the Employee in the future work project implemented in 2022 by a team of employees of the Faculty of Economic Sciences of the Koszalin University of Technology. The aim of the project is to analyze the current situation of employees of the Polish Classification of Activities (PKD) of industry, services, trade and construction and to assess both work processes, human potential and working conditions. Verification of extremely changeable realities of employees and the task of better anticipation of trends and greater ability to adapt to the dynamically changing labor market.

**Keywords** resilience, individual resilience.
**JEL codes** M12, M50, M51, L2.

## Introduction

Resilience (R) is essential for organizations to continue their day-to-day operations, providing the opportunity to grow, learn and improve, thereby benefiting a smoother organizational transformation. Therefore, it is of paramount importance to determine which features and behaviors relevant to the resilience process are its core. Taking into account current world events and situations, this paper is devoted to the ways of identifying and using the strength of resilience.Resilience is the human capacity face adversity, experienced trauma or harm, overcome them and be able to regain life balance (Kohlrieser, 2021). Resilient organizations (RO) in their activities are focused on competencies, help to achieve effectiveness and motivate development through behavioral processes in the implementation of the personnel function (Weick, Sutcliffe, Obstfeld, 1999).

Resilience makes it possible to overcome crises, and the implemented approach can be considered in the context of a way to gain a competitive advantage (Hamel, Vaelikangas 2003; Sheffi 2005). There are different definitions of resilience in many fields, including sociology, political science, management theory, public administration, and psychology. These definitions apply to different levels of analysis, from the individual scale to the global consideration scale. In this article, author is interested to present resilience individual level. The paper aims to clarify the importance of the R process for building organization values, presentation of a defined model that allows for better understanding and use of the concept for the entire organization and its employees. In addition to showing the assumptions of the model, the article includes a partial presentation of the results of research on the work process and organizational processes assessed by employees of Polish enterprises as part of the research project entitled "Employee at work of the future".

## Theoretical background

Resilience is seen as multi-faceted phenomenon, defined as “an organisation’s ability to anticipate potential threats, to cope effectively with adverse events, and to adapt to changing conditions” (Duchek, 2019). From a human resource management (HRM) perspective, resilience refers to people who can respond quickly and effectively to change with as little stress as possible (Gomes, 2015). At the individual level, resilience is defined as a person's ability to adapt and overcome stressful situations, adversities and crises (Lown, Lewith, Simon, Peters, 2015). R is variously defined as: an employee's personality trait (Connor, Davidson, 2003); the process of successfully adapting or overcoming significant states of stress or trauma (Windle, 2011), the ability to successfully fight adversity (Lee, Cranford, 2008), as a result of the ability to fight threats (Masten, 2001), or in the context of a dynamic adaptation process to adversity of fate (Luthar et al., 2000). However, it should be emphasized that it is not easy to recognize resilience. People are usually not aware of resilience, but it is assumed that it is a fact because the organization was able to overcome the crisis (Boin, van Eeten, 2013).

## Methodology

The model of individual resilience uses the assumption of the Devereux Adult Resilience Survey Authored (DARS) by Mary Mackrain. The presented model is intended to increase knowledge information on resilience capabilities in organization. The use of the model will allow to reduce the gap in the area of forecasting and learning processes as well as increasing the scope of application and identification of resilience in the individual and organizational area.

In order to partially verify the model, research was carried out, the data was collected using the Computer Assisted Web Interview method. The size of the research sample including small, medium and large enterprises operating in Poland was set at the level of at least 1051 respondents. The sample was selected at random, with the following parameters: population - 67,116 medium, large and small enterprises, confidence level - 95, fraction size - 0.5, error of 3%. The ranges covering enterprises were divided by type of activity, the division of units surveyed in the sample is as follows: industry included 500 units (47.5%), services 125 (11.9%), trade 153 (14.6%) and construction 273 (26%). The analysis concerned the current situation of employees of various industries who reported self-assessment in terms of their job position and working conditions. Verification of resilience is made from the perspective of employees' self-assessment. Dividing the respondents into areas of activity: 14.4% work in trade, 25.4% in construction, 47.1% in industry, and 13.2% in services.

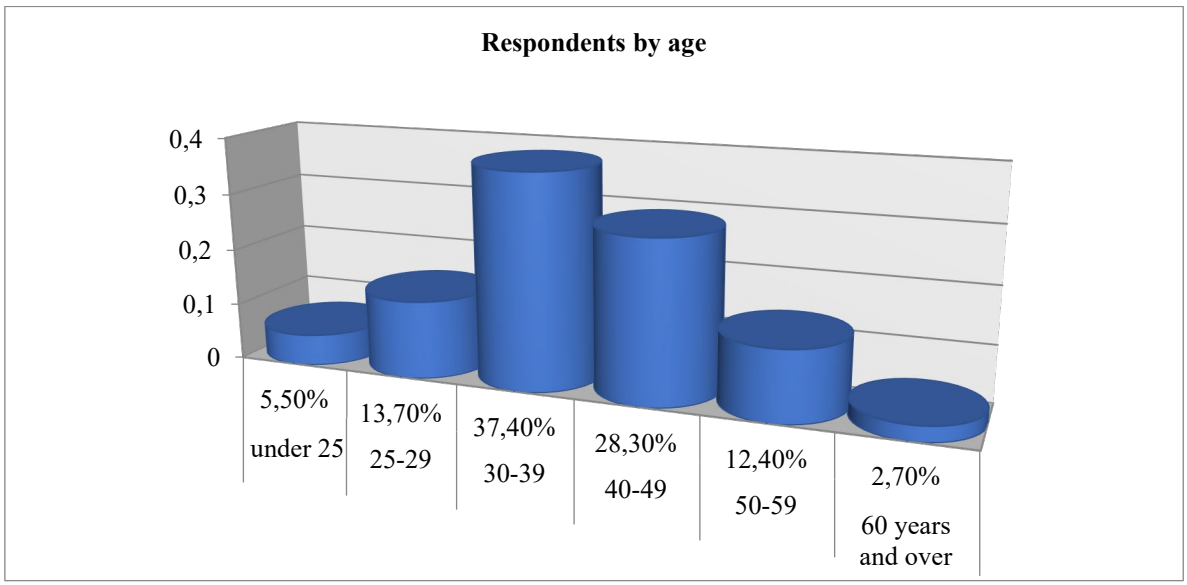


**Figure 1.** Respondents by age
*Source:* own study

**Results**

Resilience is the ability of people to respond appropriately to a challenge, stress, and even a crisis. it concerns the ability to recuperate and an adequate reaction supported by the right attitude. A 2007 study found that mental resilience is positively related to happiness and job satisfaction, as well as job performance and employee engagement. (Robertson et al., 2015). Culture of organizational resilience relies heavily on role-modelling behaviours (Everly, 2011). That is why it is so important to identify the behavioural manifestations and outcomes that can encourage people to do the same. Empirical research on R indicates that some character strengths may be indicators of resilience, with a particular relationship between emotional, intellectual, and restraint strengths (Martínez-Martí, Ruch 2017).

The area of emotional resilience includes gaining such awareness in terms of emotional and physiological reactions to stress that allows for an adequate response to the threat and dealing with it. Shows how individuals create and use bonds and how their beliefs inside and the way they perceive life influence their behaviour and reactions. Action Resilient area includes the ability to make positive choices and decisions, and act upon them. Skills that make it possible to react to a negative situation and through it develop a positive attitude of a person towards a given undesirable state. Show the individual's ability to adapt to a challenging or threatening situation. Last area of the model includes personal internal conditions of functioning, based on the power of self-determination. The ability to take care of the psyche and control uncertainty and fear in negative situations is the core for taking action and depends on the stability of the human emotional system (Baker et al., 2021).

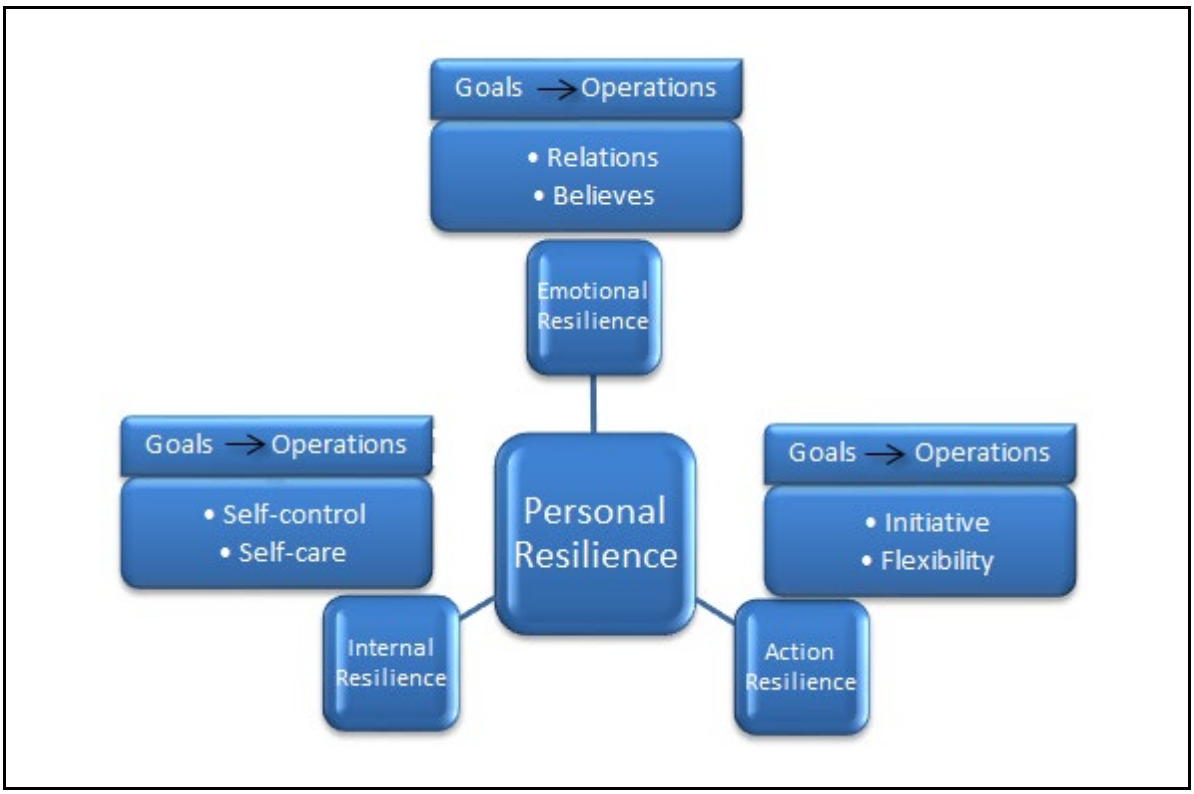


**Figure 2.** The model of Individual (Personal) Resilience
*Source:* own study

The conclusions of the research indicate that in order to become more resilient, a person should develop self-awareness, have the knowledge to evaluate existing strategies to overcome challenges and determine what transformations are necessary to increase the flexibility of actions (Cowden, Meyer-Weitz, 2016). The proposed model takes into account three areas of individual resilience: emotional, internal and action.. These elements give the possibility of growth in the individual stages of the resilience process, from the state of surviving the crisis in the initial period, through returning to the previous state and resuming stable activity and achieving emotional balance, to the stage of mental development.

Consequently, the model enables development and adaptation to specific human needs. The model schema uses the assumption of the Devereux Adult Resilience Survey Authored (DARS) by Mary Mackrain, which consider the possibility of changing the behaviour of the individual. Takes into account the areas that build personal resilience, which the respondent self-diagnoses by answering key questions for a given area. Moreover, based on DARS, it enables the development of goals and determination of actions that allow the development of skills that build individual resistance. In addition, the area of goals and activities allows to build such scopes that improve the functioning of the employee.

The model of individual resilience encompasses a self-reflective checklist measuring three important areas of personal resilience. Participants responded to each matters on a 5-point Likert scale with 1 indicating "poorly" and 5 indicating "very good". All issues studied items reflect positive behaviours; therefore, higher scores are desirable (Devereux, 2019).

The conducted research concerned a wide range of issues related to the work process, one of the areas considered the level of individual and organizational resilience. As part of the verification of the presented model, the results of the respondents' answers in the selected areas of the individual resilience model will be shown in figure 2. The selective presentation of the results was mainly dictated by editorial limitations and the nature of the publication.

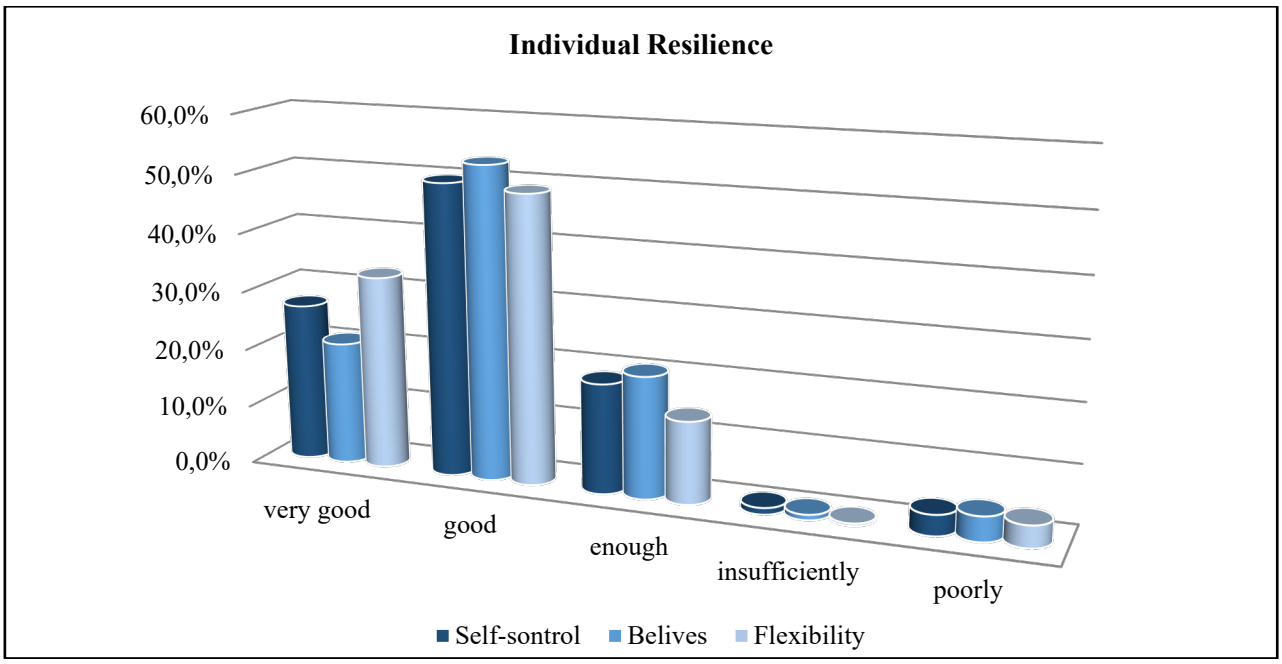


**Figure 2.** The model of Individual (Personal) Resilience selected issue
*Source:* own study

Most of the respondents positively assess their predispositions in terms of individual resilience in the context of self-control, very-good 26.9%, good 49.8%, believing 20.9%, very good and good 53.2%, in the area of flexibility 33.0% very good and 49% at the good level of the total number of respondents' answers. The results are only part of the verification of the issue of individual resilience, in general, 1094 participants of the study made an assessment that can be considered good and advisable, however, it is necessary to verify what goals, actions, behaviors and processes determine such responses. The use of the model enables making a diagnosis useful both in organizational conditions and effective for individual self-assessment of possessed dispositions and abilities. The assumption of the implementation of the model is to increase awareness of personal strengths and areas requiring actions to support and strengthen individual resilience. The company, on the other hand, has the opportunity to develop strategies for strengthening protective factors shown to support resilience.

**Conclusion**

The implementation of the model enables not only to identification of strengths and weaknesses of individual resilience, but also allows to take actions increasing the resilience skills of the employee. Resilience considers individuals in a holistic way. As Professor Kohlrieser proclaims: "It is not enough to talk about the brain, we also need to talk about the heart" (Kohlrieser, 2021). The use of the model allows to assess whether a given employee has the characteristics of a highly resilience unit. Model take into account the main factors characterizing an employee with a high potential for overcoming and uncertain situations. Among the main features of individuals characterized by high resilience, it should be mentioned:

- High engagement in teams base on passion.
- People open to others, able to define and express their feelings.
- Value both bonding and emotional autonomy.
- Value and create relationships based on trust.
- Capacity to form bond with others.

Uncertainty of business, aggressive and ruthless competitors, and a negative image of organizational identity and culture are recognized as overriding threats that determine the need for greater resilience (The Economist Resilience is not the basis of the current state, it is a process that by definition is a flow of streams, improved by feedback. The variables that activate resilience are conditioned by organization, people, knowledge, and technology, interactions among these (Serrat, 2017). Interest in organizational resilience is constantly growing, theoretical studies created should be subject to empirical verification. Aware, strong and committed employees who create valuable processes are the key to achieving organizational resilience. having employees with appropriate potential, correlated with activities that are the company's response to the needs

of customers, knowledge management processes and appropriate leadership are the foundations of creating the organization's resilience.

The task of individuals and resilience organizations is to effectively respond to sudden and negative events in line with the concept of the process in terms of before during and after (Alliger et al., 2015; Williams et al., 2017, Duchek 2019). The presented models are intended to contribute to the extension of the scope of knowledge in terms of considering resilience both at the individual and organizational level. The developed functional diagrams of the discussed areas of resilience were created to complement the model views of the processes. they show how resilience can function, how to relate, to use the data obtained on the basis of the verification of a given model in relation to the reality that organizations and their employees have to face. Resilience enables organizations to overcoming stressful situations, constantly introducing improvements and quickly reacting to changes, thanks to which resilience can be a key element in building a sustainable competitive advantage consciously and continuously. Nevertheless, more research is needed to develop organizational resilience.

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