PROFOUND STRUCTURAL TRANSFORMATIONS OF SOCIO-ECONOMIC AND ECOLOGICAL SYSTEMS BASED ON RESILIENCE, SUSTAINABLE AND INCLUSIVE DEVELOPMENT

Scientific monograph

Higher School of Security and Economics
(Plovdiv, Bulgaria) 2025

Authors:

Daiva Aktas
Pavlo Aleynyk
Svitlana Andros
Franci Avsec
Olesia Bezpartochna
Maksym Bezpartochnyi
Larysa Bogush
Nataliia Bordiug
Ivan Bosak
Rasa Bražulienė
David Březina
Igor Britchenko
Anna Chochowska
Krzysztof Chochowski
Olena Chukurna
Yelyzaveta Chukurna
Janina Čižikienė
Marta Danylovych-Kropyvnytska
Irina Dulska
Lukasz Furman
Witold Furman
Jakub Horák
Oleksii Hutsaliuk
Nataliia Ivanytska
Robert Jurczak
Olena Karpii
Aleksander Kasprzyk
Evgene Kholostenko
Yuri Kindzerski
Dariusz Kłak
Nataliia Kondratenko
Vitalina Konenko
Renata Korsakiene
Oleksandr Kovalenko
Oleh Kucherenko
Svitlana Kucherenko
Liudmyla Levaieva
Hanna Malchenko
Ihor Martsinenko
Nataliia Mashchak
Lukáš Melecký
Astrida Miceikienė
Ernesta Molotokiene
Ramutė Narkūnienė
Maryna Novikova
Jessica Orzechowska
Martin Pavlovič
Oksana Perchuk
Halyna Pushak
Tatiana Ratoshniuk
Viktor Ratoshniuk
Svitlana Reshmidilova
Olha Rudachenko
Olena Sakovska
Olha Samoshkina
Vladimir Shedyakov
Olesia Skliarenko
Alla Sokolova
Halyna Skoryk
Michaela Staníčková
Olena Stanislavyk
Dmytro Stetsenko
Nataliia Suprun
Urszula Szczytyńska
Andrius Tamošiūnas
Karina Taraniuk
Leonid Taraniuk
Anatoly Telnov
Svitlana Tolochko
Vasyl Tkachuk
Serhiy Tretko
Vladyslava Troian
Darija Trpin Švikart
Volodymyr Velychko
Roman Vovchenko
Nataliia Yevtushenko
Olena Yosypenko
Anna Zych

Profound structural transformations of socio-economic and ecological systems based on resilience, sustainable and inclusive development. Scientific monograph. – Plovdiv: HSSE Publishing Complex, 2025. – 699 p.

The authors of the scientific monograph concluded that profound structural transformations of socio-economic and ecological systems based on resilience, sustainable and inclusive development require of introduction of innovations, attraction of investments, digitalisation, implementation of adaptation mechanisms, and strengthening of international partnerships. Basic research focuses on the formation of sustainability mechanisms for the adaptation of socio-economic and ecological systems to changes and challenges, and sustainable development tools to ensure the long-term viability of socio-economic and ecological systems. The research results have been implemented in various decision-making models for the use of tools to ensure economic security, financial stability, innovative sustainability, corporate social responsibility, and the development of territorial communities during martial law. The results of the study can be used in the developing of strategies, mechanisms and models for ensuring the sustainability and security of economic entities and territorial communities, the formation of economic, social and ecological policies to ensure sustainable and inclusive development. The results can also be used by young scientists in the educational process and in conducting scientific research on solving global economic, social and ecological problems.

Reviewers:

Jasmina Gržinić – prof. dr. sc., Juraj Dobrila Univesity of Pula, Croatia

Marcin Kęsy – dr. hab., prof., Pomeranian University in Starogard Gdanski, Poland

Iryna Nadtochii – Dr.Sc. (Economics), Professor, Kherson Educational-Scientific Institute of Admiral Makarov National University of Shipbuilding, Ukraine

Recommended for publication by the Academic Council of the Higher School of Security and Economics (Protocol No. 02 of 12 June 2025).

Reproduction or citation reference is mandatory.

© Collective of Authors, 2025
© Higher School of Security and Economics, 2025

ISBN 978-619-7774-27-6 (print)
ISBN 978-619-7774-28-3 (pdf)

Profound structural transformations of socio-economic and ecological systems based on resilience, sustainable and inclusive development

Contents

INTRODUCTION ……. 10

Chapter 1
THEORETICAL APPROACHES TO PROFOUND STRUCTURAL TRANSFORMATIONS OF SOCIO-ECONOMIC AND ECOLOGICAL SYSTEMS ……..…. 11

Bezpartochnyi M., Britchenko I., Bezpartochna O., Malchenko H.
Economic security of a logistics company: financial, marketing, and environmental aspects ……..……..… 11

Kindzerski Yu.
Industrial parks in the transformation of economic systems: opportunities for Ukraine ……..… 32

Molotokiene E.
The genesis of the normative principles of the concept of sustainability ……...……..… 51

Pushak H.
Problems and directions of ensuring socio-economic development of Ukraine in the conditions of war …….. 63

Ratoshniuk T., Tkachuk V., Sokolova A., Ratoshniuk V.
Clustering as a means of diversification of the hop industry …. 75

Reshmidilova S., Aleynyk P.
Social responsibility of business in the context of structural transformations of socio-economic and environmental systems …… 94

Skoryk H., Ivanytska N.
Issues of managing the economic development of territorial communities ……..... 104

Suprun N.
Social entrepreneurship as a mechanism of economic solidarity ……... 115

Tolochko S., Bordiug N.
Theoretical substitution of the importance of forming environmental competence of students for the sustainable development of ecological systems ……..….... 127

Chapter 2
INNOVATION, INVESTMENT AND DIGITALISATION FOR RESILIENCE, SUSTAINABLE AND INCLUSIVE DEVELOPMENT OF SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEMS ……... 139

Aktas D., Bražulienė R.
The electric car through the eyes of the Lithuanian consumer: between sustainability and practical choice ……. 139

Chukurna O., Kholostenko E., Martsinenko I., Chukurna Ye.
Innovative marketing communications model in the context of digital ensurance of sustainable development …….. 154

Čižikienė J.
The role of social capital in developing social innovations in social service organizations …… 167

Kucherenko S., Levaieva L., Kucherenko O.
Directions of development of innovative entrepreneurship in Ukraine ……..……...……... 187

Perchuk O., Vovchenko R., Yosypenko O.
Innovative business solutions: transformation of strategies and ethical challenges in the implementation of artificial intelligence ……..…… 214

Rudachenko O., Konenko V.
Innovation sustainability of regions and territorial communities as a component of spatial development …… 224

Telnov A., Tretko S.
Mechanism of interaction of innovation and information support of entrepreneurial activities of cooperative associations as a condition for sustainable development of socio-economic systems …….. 236

Yevtushenko N., Skliarenko O., Stetsenko D.
Inclusiveness through digital technologies: ensuring equal access to innovation …… 248

Chapter 3
USING RESILIENCE MECHANISMS TO ADAPTATION SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEMS TO CHANGES AND CHALLENGES …… 257

Andros S.
Financial stability as an important factor in ensuring credit worthiness of agro-industrial complex enterprises …….. 257

Bogush L.
The resilience of labour use and reproduction as the principle of Ukraine's sustainable development strategy …… 270

Danylovych-Kropyvnytska M.
Development of regions based on a cluster approach …….. 291

Furman L., Furman W., Orzechowska J.
Tax aspects of environmental protection and sustainable development ……..… 301

Jurczak R.
Ensuring the financial stability of Polish agricultural enterprises in terms of modern challenges ……..... 319

Kłak D.
Human capital as the foundation of resilience and transformation of municipal socio-economic systems in response to contemporary crises ……..…… 333

Kondratenko N., Novikova M., Velychko V., Troian V.
Conceptual principles of managing the development of business social responsibility in the regions of Ukraine ……..……... 345

Melecký L.
Workplace values and team resilience in multigenerational project settings: navigating structural transformation through inclusion ……... 357

Samoshkina O.
Fiscal stimulation of agroindustrial production in view of military and globalization challenges ……..…….. 370

Shedyakov V.
Social impact: source of threats and/or opportunities ……..… 383

Szczytyńska U., Kasprzyk A.
The importance of quality costs in assessing the efficiency of business management …….. 395

Chapter 4
SUSTAINABLE DEVELOPMENT TOOLS TO ENSURE THE LONG-TERM VIABILITY OF SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEMS ……... 417

Avsec F.
Social economy: from resolutions and recommendations to legislation …… 417

Bosak I., Danylovych-Kropyvnytska M.
Problems of managing information security in government institutions ……..…..… 430

Dulska I.
Institutional problems of digitalization in Ukraine during the war and European integration …… 440

Jurczak R.
Criteria for ensuring the financial security of Polish agricultural enterprises in the context of sustainable development ……. 454

Karpii O., Mashchak N.
Marketing activities role in increasing brand awareness of craft beer company "UZVAR" …… 470

Pavlovič M., Švikart D. T.
Assessment of production economics on hop industry farms …….. 481

Sakovska O.
The role of recreational activities in increasing the attractiveness of tourist destinations ……..……..……... 493

Skoryk H., Ivanytska N.
Human capital as basis for sustainable development of Ukraine …….. 506

Szczytyńska U.
Financing business activities – legal aspects, tax shields …… 517

Chapter 5
STRENGTHENING INTERNATIONAL PARTNERSHIPS TO TACKLE CROSS-BORDER CHALLENGES AND ADDRESS GLOBAL ECONOMIC, SOCIAL AND ENVIRONMENTAL ISSUES ……...…….. 530

Březina D.
Mechanisms for improving public administration and developing of territorial communities in Moravian-Silesian Region, using critical thinking …… 530

Chochowska A., Chochowski K., Zych A., Britchenko I.
Opportunities and threats for the development of the defense industry in Poland ……..…….…… 543

Horák J.
Recycling in Northern and Central European countries: approaches and conditions ……... 573

Hutsaliuk O.
Social responsibility of corporate companies in the system of cross-border entrepreneurial relations …….. 588

Narkūnienė R.
Analysis of factors for sustainable development of the tourism sector ……..…….. 600

Staníčková M.
Intergenerational dynamics and digital transformation in EU-funded project management: a Czech perspective ……..….. 612

Stanislavyk O., Kovalenko O.
The role of international economic alliances in overcoming global crises ……..…..…….. 625

Tamošiūnas A.
Evaluating the social utility of business measures financed by European structural and investment funds: a case study of Lithuania ……..…... 653

Taraniuk L., Taraniuk K., Korsakiene R., Miceikienė A.
Tax burden on small business entities (the case of Lithuania) and the opportunities for benchmarking the system into the national economy under the conditions of Ukraine's post-war development …….. 684

CONCLUSION …… 695

INTRODUCTION

In the face of escalating global challenges – including climate change, economic inequality, environmental degradation, geopolitical instability, and rapid technological change – modern societies are increasingly recognizing the limitations of traditional development models. These models, often focused on short-term economic growth, have failed to ensure long-term stability, equity, and ecological balance. As a result, the imperative for profound structural transformations of socio-economic and ecological systems has become more urgent than ever.

The concept of resilience – the capacity of systems to absorb disturbances, adapt to change, and continue functioning – is central to this transformation. Alongside resilience, the principles of sustainable development (meeting present needs without compromising future generations) and inclusive development (ensuring that all segments of society benefit from progress) serve as foundational for systemic change.

This scientific monograph explores the interplay between these three interconnected paradigms. It argues that only through an integrated approach – where resilience thinking is embedded into sustainable and inclusive development strategies – can societies navigate contemporary crises and transition towards more just, robust, and adaptive systems. Emphasis is placed on transforming institutional frameworks, governance mechanisms, production and consumption patterns, and human-environment interactions to foster long-term viability and equity.

The purpose is not only to adapt to global risks but to reimagine development itself as a multidimensional, dynamic, and participatory process. The object of the study is the system of socio-economic and ecological relations undergoing structural transformation under the influence of global challenges and development paradigms. This includes the interaction between institutions, communities, economic entities, and environmental systems in the context of implementing resilience-based, sustainable, and inclusive development strategies. The subject of the study is the mechanisms, principles, and models of implementing structural transformations within socio-economic and ecological systems, with a focus on enhancing resilience, sustainability, and inclusiveness in development processes.

Chapter 1

THEORETICAL APPROACHES TO PROFOUND STRUCTURAL TRANSFORMATIONS OF SOCIO-ECONOMIC AND ECOLOGICAL SYSTEMS

Maksym Bezpartochnyi
ORCID: https://orcid.org/0000-0003-3765-7594
Doctor in Economics, Professor
Department of Management and Marketing
State University of Intellectual Technologies and Communications
Igor Britchenko
ORCID: https://orcid.org/0000-0002-9196-8740
Doctor in Economics, Professor
Higher School of Security and Economics
Olesia Bezpartochna
ORCID: https://orcid.org/0000-0002-0919-2972
PhD in Finance, Insurance, Social Insurance (Bulgaria), Associate Professor of the Department of Management and Administration
Rauf Ablyazov East European University
Hanna Malchenko
ORCID: https://orcid.org/0009-0000-6794-969X
Master's degree
Senior Logistics Analyst
IQS Group LLC
(Odesa, Cherkasy, Ukraine; Plovdiv, Bulgaria; Dayton, United States)

ECONOMIC SECURITY OF A LOGISTICS COMPANY: FINANCIAL, MARKETING, AND ENVIRONMENTAL ASPECTS

https://doi.org/10.5281/zenodo.15707472

Abstract
This paper explores the multifaceted nature of economic security for logistics companies by examining three interdependent dimensions: financial, marketing, and environmental. Each of these pillars contributes to the company's stability, growth potential, and adaptability in a dynamic business environment. Financial management ensures resource optimization and risk mitigation; marketing strategies support revenue generation and brand differentiation; and environmental sustainability enhances operational efficiency and regulatory compliance. By analyzing these aspects, the authors provides recommendations for logistics companies to enhance resilience, profitability, and long-term sustainability in a rapidly evolving global market.

Keywords: *logistics, economic security, financial stability, marketing strategy, environmental sustainability.*

Introduction

In the contemporary global economy, logistics companies play a vital role in ensuring the seamless flow of goods and services across supply chains. However, the industry faces an array of internal and external threats – ranging from economic volatility, market competition, and fuel price fluctuations to regulatory pressures and environmental concerns. In such a turbulent landscape, ensuring the economic security of a logistics company becomes paramount.

Economic security, in this context, refers to the company's ability to maintain stable operations, safeguard assets, and remain competitive despite uncertainties and potential disruptions. It involves not only financial resilience but also strategic positioning in the market and alignment with evolving environmental standards and expectations.

In the increasingly globalized and interconnected economy, logistics companies serve as critical enablers of international trade and supply chain efficiency. However, the sector is also highly vulnerable to economic disruptions, competitive pressures, and regulatory challenges. These vulnerabilities highlight the growing importance of ensuring the economic security of logistics enterprises

– defined as the ability to sustain operations, preserve financial viability, and adapt strategically to external and internal risks (Sheffi, 2007).

Economic security in the logistics industry encompasses more than financial solvency. It also includes a firm's capacity to respond to market changes, maintain customer trust, and align with environmental and sustainability standards. In this context, economic security becomes a multidimensional concept that integrates financial stability, marketing resilience, and environmental responsibility – each playing a critical role in securing the long-term viability of logistics firms (Waters, 2019).

Financial aspects relate to cost management, liquidity, investment strategies, and risk mitigation mechanisms, which together ensure the firm's operational continuity and profitability (Christopher, 2016). Marketing strategies, including brand positioning, customer diversification, and digital engagement, influence customer retention and revenue stability. Meanwhile, environmental sustainability is increasingly recognized as both a regulatory imperative and a market differentiator, driving innovation in green logistics and contributing to long-term cost efficiency and stakeholder value (McKinnon et al., 2015).

This paper aims to explore how these three interrelated dimensions – financial, marketing, and environmental – collectively contribute to the economic security of logistics companies. By analyzing their synergies and examining real-world case studies, the study offers a comprehensive framework for enhancing resilience and competitiveness in the logistics sector.

Materials and Methods

The methodological basis of the study is the general economic principles and methods of a systematic approach to studying the process of ensure economic security of logistics companies in terms of financial, marketing and environmental aspects. The methods of analysis and synthesis were applied, which allowed identifying and characterising the components of financial, marketing and environmental aspects of the economic security of a logistics company. The abstract-logical method was used to determine the directions of further ensuring the economic security of logistics

companies, taking into account current challenges and trends. The monographic method was used to studying successful practices of well-known logistics companies in the world.

Research and Discussion

The logistics industry plays a crucial role in global trade, ensuring the efficient movement of goods across supply chains. Logistics companies interact with various stakeholders to form their own economic security. We consider the economic security of a logistics company from the following aspects:

1. Financial – ensuring profitability, liquidity, and risk management.
2. Marketing – maintaining competitiveness and customer loyalty.
3. Environmental – adopting sustainable practices to comply with regulations and reduce operational risks.

The components and characteristics of financial aspect of the economic security of a logistics company are defined in Table 1.1. Logistics companies face increasing financial risks, including fluctuating fuel prices, supply chain disruptions, and changing market demands. Economic security – defined as a company's ability to maintain stability, profitability, and growth despite external and internal threats – is crucial for long-term survival. The financial aspect of economic security plays a central role, as it determines a company's capacity to withstand crises, invest in innovation, and remain competitive.

Let's consider these components of financial aspect on the examples of well-known logistics companies in the world.

Liquidity management ensures the company can meet short-term obligations (payroll, fuel, maintenance). During the 2021 Suez Canal blockage, Maersk maintained strong liquidity to reroute shipments and compensate customers, demonstrating crisis resilience (Maersk, 2021). Gross and net profit margins indicate revenue sustainability. DHL improved profitability by 18% in 2022 through AI-driven route optimization and fuel-efficient fleets (DHL, 2022). Solvency and capital structure evaluates long-term debt management via debt-to-equity and interest coverage ratios. FedEx restructured its debt in 2020, extending maturities to avoid liquidity crunches during the

Table 1.1

The components of financial aspect of the economic security of a logistics company

Component	Characteristics
Cost control and optimization	Logistics firms incur significant operational costs, including fuel, labor, vehicle maintenance, and warehousing. Implementing cost control measures such as route optimization, fleet maintenance schedules, and the use of technology like Transport Management Systems (TMS) can enhance efficiency and reduce waste.
Liquidity and access to capital	Maintaining sufficient liquidity is crucial to handle unforeseen expenses and invest in growth opportunities. Companies should diversify their funding sources through bank loans, equipment leasing, or private equity. Effective cash flow management ensures operational continuity and timely supplier payments.
Risk management and insurance	Insurance coverage for cargo, vehicles, and third-party liability mitigates potential losses. Additionally, hedging against fuel price volatility and currency fluctuations can protect margins. A comprehensive risk management strategy reduces financial exposure and enhances investor confidence.
Financial reporting and performance monitoring	Using key performance indicators (KPIs) such as operating margins, return on logistics assets (ROLA), and debt-to-equity ratios enables companies to monitor financial health. Transparent financial reporting supports strategic decision-making and fosters stakeholder trust.

pandemic (FedEx, 2020). Return on assets (ROA) and return on equity (ROE) measure resource utilization. UPS achieved a 12.5% ROA in 2023 by automating warehouses and expanding its healthcare logistics division (UPS, 2023a). Risk management and financial resilience – hedging against fuel price volatility and currency risks. CMA CGM used fuel hedging contracts to save $400 million in 2022 amid oil price surges (International Transport Forum, 2022). Sustainability investments: DHL's €7 billion decarbonisation plan (2020-2030) ensures long-term regulatory compliance and cost savings (International Transport Forum, 2022).

The marketing aspect of economic security plays a strategic role in ensuring the long-term sustainability and competitiveness of a logistics company. While often underestimated in risk management frameworks, marketing directly influences revenue stability, market adaptability, and client retention – all critical elements of economic resilience (Table 1.2).

Table 1.2

The components of marketing aspect of the economic security of a logistics company

Component	Characteristics
Brand strength and reputation	A reliable and trustworthy brand attracts and retains customers. Consistent service delivery, effective customer relationship management (CRM), and proactive crisis communication are essential in maintaining a positive image.
Customer diversification	Overreliance on a few key clients can expose firms to demand shocks. Expanding into new markets, industries, or geographical regions mitigates risk and stabilizes income. Serving diverse customer segments – such as e-commerce, agriculture, and healthcare – adds resilience.
Digital marketing and online visibility	An online presence through SEO, social media, and B2B logistics platforms enhances visibility and customer engagement. Leveraging data analytics allows targeted marketing and efficient lead conversion.
Value-added services	Offering integrated services such as warehousing, real-time tracking, and customs clearance increases customer satisfaction and revenue per client. These services can differentiate a company in a competitive market.

In practice for market positioning and competitive intelligence of logistics companies use such as tools Porter's five forces analysis, SWOT frameworks, and real-time competitor benchmarking. For example, DHL's "The Logistics Company for the World" positioning helped it capture 19% global market share by clearly differentiating its services (DHL, 2023). Customer relationship management in logistics companies is based on customer lifetime value (CLV), retention rates, and satisfaction scores (NPS). Thanks to this metrics, FedEx's predictive analytics system reduced

customer churn by 22% by anticipating shipping needs (FedEx, 2020). Current trends show that 63% of logistics customers now prefer digital self-service platforms (McKinsey, 2023). For example, Maersk's digital platform increased SME customers by 35% through streamlined booking. Social listening platforms, sentiment analysis, and rapid response protocols serve as tools for brand resilience and reputation management (Maersk, 2021). Crisis example, UPS maintained 94% customer trust during 2022 labor disputes through proactive communication (UPS, 2023a). Pricing strategy and value proposition is based on value-based pricing for premium services vs. competitive pricing for commoditized routes. Companies with dynamic pricing models saw 17% higher margins (BCG, 2023).

The environmental aspect of economic security in a logistics company encompasses several critical components that ensure sustainable and resilient operations while mitigating risks (Table 1.3).

Table 1.3

The components of environmental aspect of the economic security of a logistics company

Component	Characteristics
Green logistics practices	Adopting fuel-efficient or electric vehicles, optimizing delivery routes, and reducing packaging waste help lower environmental impact. These practices also lead to cost savings in the long run.
Compliance with environmental regulations	Adherence to local and international environmental standards prevents legal penalties and enables access to green incentives. Compliance ensures operational continuity and aligns with stakeholder expectations.
Corporate social responsibility (CSR) and ESG reporting	Engaging in CSR activities and reporting on Environmental, Social, and Governance (ESG) metrics improves reputation and attracts investors who prioritize sustainability. Transparent communication of environmental initiatives enhances public trust.
Market value and competitive advantage	Environmental performance can become a differentiator in the marketplace. Companies known for sustainable practices may enjoy customer preference and increased valuation.

The logistics companies more and more implementing green initiatives, demonstrating how environmental responsibility aligns with business success. DHL's GoGreen environmental protection program aims to reduce logistics-related emissions to net zero by 2050 due to carbon-neutral shipping, use of electric delivery vehicles and bicycles, smart route planning to reduce fuel consumption (DHL, 2023b). This has a positive impact on economic security – reducing fuel costs and improved fleet efficiency, increasing attractiveness to environmentally conscious clients, evidencing of environmental fines and compliance with EU regulations. Maersk's Decarbonizing Ocean Freight Program aims to investment in methanol-powered vessels and commitment to reach net-zero emissions by 2040 (Maersk, 2023). Components are emissions control (CO_2, NO_x) and innovation in green shipping technology. Positive impact on economic security are long-term fuel savings, secured future access to "green" shipping corridors and EU ports, strengthened brand image and investor trust. The UPS initiative is to operating over 13,000 alternative fuel and advanced technology vehicles, including energy diversification, emissions reduction, waste and fleet management (UPS, 2023). Impact on economic security are reducing exposure to oil price volatility, lower operating costs, positive public and government perception. DB Schenker uses of solar panels and energy-efficient lighting in distribution centers due to renewable energy adoption and infrastructure sustainability (DB Schenker, 2023). Positive impact on economic security are reducing energy bills, incentives from green government policies, scalable across global operations.

Taking into account the considered components of financial, marketing and environmental aspects of economic security of logistics companies, we propose directions of its further ensuring, taking into account current challenges and trends (Table 1.4).

Table 1.4

Proposals for further ensuring the economic security of the logistics company, taking into account financial, marketing, and environmental aspects

In the field of financial stability:
• to develop short-term and long-term financial forecasts to anticipate revenue, expenses, and cash flow needs;

• to maintain a cash reserve to cover operational disruptions (e.g., fuel price spikes, delayed payments); • to identify and reduce inefficiencies in logistics operations (fuel consumption, route optimization, warehouse costs); • to secure comprehensive insurance (cargo, liability, business interruption); • to use financial derivatives (futures, options) to hedge against fuel price volatility and currency fluctuations; • to implement strict credit checks for clients to avoid bad debts; • to use advance payments or letters of credit for high-risk transactions; • to balance short-term and long-term debt to avoid liquidity crunches; • to refinance high-interest loans when possible; • to implement Transport Management Systems (TMS) and Warehouse Management Systems (WMS) to optimize logistics costs; • to maintain a line of credit for unexpected financial needs; • to establish relationships with multiple financial institutions for flexible funding; • to simulate economic shocks (fuel price surges, supply chain disruptions) and develop response strategies; • to collaborate with financial institutions, logistics networks, and tech providers to enhance stability.
In the field of marketing aspect:
• to highlight competitive advantages (e.g., fastest delivery times, cost efficiency, tech-driven tracking); • to use AI-driven analytics for demand forecasting and route optimization; • to expand service offerings (e.g., last-mile delivery, warehousing, 3PL services); • to enter new markets (geographical or industry-specific) to reduce dependency on a single sector; • to emphasize reliability, security, and customer support; • to monitoring online reviews (Google, Trustpilot) and address negative feedback promptly; • to use CRM tools to track client preferences and offer tailored solutions; • to introduce discounts for long-term contracts or referral programs; • to provide real-time shipment tracking and proactive issue resolution; • to proactively inform customers about delays (weather, strikes) and offer alternatives; • to run Google Ads targeting commercial shipping clients;

• to use LinkedIn for B2B outreach and Facebook/Instagram for e-commerce logistics.
In the field of environmental sustainability:
• to gradually replace diesel trucks with electric vehicles (EVs), hybrids, or LNG/CNG-powered fleets; • to use aerodynamic designs and low-rolling-resistance tires to improve fuel efficiency; • to training drivers in eco-driving techniques (smooth acceleration, reduced idling); • to use LED lighting and smart HVAC systems to cut electricity costs; • to shift to recyclable, biodegradable, or reusable packaging materials; • to implement waste recycling programs for cardboard, plastics, and pallets; • to use carbon accounting software (e.g., EcoTransIT, Carbon Footprint Ltd.) to measure CO_2 emissions per shipment; • to collaborate with reforestation projects or invest in carbon credit programs to neutralize emissions; • to encourage suppliers to use low-emission transport modes (rail, maritime over air freight where possible); • to highlight carbon-neutral deliveries, electric fleets, and waste reduction in marketing campaigns; • to use eco-labels (e.g., "CO_2-neutral shipping") to attract environmentally conscious clients; • to publish an annual sustainability report showcasing emission reductions and green initiatives.

Implementation of the above proposals by logistics companies will ensure financial stability, implementation of effective marketing strategies and environmental sustainability, which in turn will contribute to ensure economic security.

Conclusions

Based on the results of the research, the following conclusions were made:

1. The financial aspect of economic security is a foundational pillar for the stable and resilient operation of a logistics enterprise. This study has identified and analyzed several core components that collectively determine the level of financial stability. Sufficient working capital and a balanced debt-to-equity ratio are essential to ensure uninterrupted operations and the ability to meet short- and

long-term obligations. Enterprises with low liquidity are more vulnerable to external shocks and supply chain disruptions. Consistent profitability, driven by cost-optimized operations and strategic pricing, enhances the logistics company's capacity to reinvest in infrastructure, technology, and human resources – all of which are crucial for maintaining competitiveness and long-term economic security. The presence of robust financial controls, scenario planning, and crisis response mechanisms helps mitigate risks such as currency fluctuations, interest rate volatility, and unexpected operational losses. A healthy capital structure, with a prudent mix of own and borrowed funds, ensures that logistics companies can finance fleet upgrades, digitalization, and geographic expansion without compromising financial stability. Predictable and positive cash flow supports operational continuity and flexibility in decision-making. Volatile cash flows, on the other hand, can indicate hidden vulnerabilities in client management or payment policies.

2. The study identifies several key components of marketing that contribute to economic security. A well-established brand and clear market positioning help logistics enterprises attract and retain clients, even during periods of market volatility. Strong brand recognition reduces dependency on short-term contracts and price competition. Stable and long-term relationships with clients enhance predictability of income and reduce the risks associated with customer churn. Effective CRM systems also enable personalized service and quicker response to client needs. The ability to monitor market trends, competitor behavior, and client demands allows logistics companies to adjust strategies proactively. Marketing strategies that emphasize value-added services – such as eco-logistics, real-time tracking, or flexible delivery – provide a competitive edge. Differentiation reduces price sensitivity and strengthens customer loyalty.

3. Environmental sustainability is integral to economic resilience. The ability of a logistics company to remain economically secure increasingly depends on its capacity to reduce environmental risks and comply with environmental regulations. Logistics companies that neglect ecological considerations face rising costs, penalties, and reputational risks. Effective environmental security strategies in logistics require systematic control over fuel consumption, CO_2 and NO_x emissions, packaging waste, and reverse logistics processes.

These elements directly influence operating costs and long-term viability. Adhering to national and international environmental standards (such as ISO 14001 or EU Green Deal regulations) is not only a legal requirement but also a competitive advantage, particularly in international logistics chains. Technologies like electric vehicles, route optimization software, and eco-friendly packaging contribute to environmental sustainability while reducing fuel and material costs – boosting profitability in the long term. Clients, investors, and partners are increasingly valuing sustainable practices. Logistics companies that demonstrate environmental responsibility gain brand loyalty and secure strategic partnerships, enhancing economic stability.

4. The authors' propose a number of measures aimed at further ensuring the economic security of logistics companies. A financially stability of logistics company must balance cost control, risk mitigation, and strategic investments while ensuring compliance and liquidity. A strong marketing strategy enhances economic security by stabilizing revenue streams, improving customer retention, and differentiating the logistics company in a competitive market. Combining digital marketing, customer engagement, and strategic partnerships ensures long-term growth and resilience. By integrating environmental sustainability into logistics operations, companies can reduce costs, comply with regulations, and attract eco-conscious customers, thereby strengthening long-term economic security.

References:

1. *Christopher, M. (2016). Logistics and Supply Chain Management (5th ed.). Pearson Education.*
2. *McKinnon, A. C., Browne, M., Whiteing, A., & Piecyk, M. (2015). Green Logistics: Improving the Environmental Sustainability of Logistics (3rd ed.). Kogan Page.*
3. *Sheffi, Y. (2007). The Resilient Enterprise: Overcoming Vulnerability for Competitive Advantage. MIT Press.*
4. *Waters, D. (2019). Supply Chain Risk Management: Vulnerability and Resilience in Logistics. Kogan Page.*
5. *Maersk. (2021). Annual Report 2021: Navigating through disruption. https://www.maersk.com/reports/2021*
6. *A.P. Moller – Maersk. (2023). Maersk decarbonisation targets. Retrieved from https://www.maersk.com/sustainability/environmental-social-governance/decarbonisation*

7. *DHL. (2022). Sustainability Report 2022: Delivering on our ESG commitments. https://www.dhl.com/sustainability-reports*
8. *DHL. (2023). Sustainability at DHL: GoGreen Program. Retrieved from https://www.dhl.com/global-en/home/about-us/sustainability.html*
9. *FedEx. (2020). Form 10-K: Annual financial report. U.S. Securities and Exchange Commission. https://www.sec.gov/Archives/edgar/data/1048911/000104891120000011/fdx-20200531.htm*
10. *UPS. (2023a). Investor relations: Financial performance highlights. https://www.investors.ups.com/financials*
11. *UPS. (2023b). Sustainability Highlights: Advanced Technology and Alternative Fuel Vehicles. Retrieved from https://about.ups.com/ae/en/our-impact/sustainability.html*
12. *International Transport Forum. (2022). Decarbonising logistics: Distruptions and opportunities. OECD Publishing. https://doi.org/10.1787/b1993aaf-en*
13. *McKinsey. (2023). Technology Trends Outlook. https://www.mckinsey.com/~/media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/mckinsey%20technology%20trends%20outlook%202023/mckinsey-technology-trends-outlook-2023-v5.pdf*
14. *BCG. (2023). Building the Supply Chain of the Future. https://web-assets.bcg.com/08/13/01cd63864454bb7e9d9b40605ca9/building-the-supply-chain-of-the-future-july-2023-edit.pdf*
15. *DB Schenker. (2023). Sustainability Report 2023. Retrieved from https://www.dbschenker.com/global/about/sustainability*
16. *Britchenko I. (2020). The Influence of migration on the financial circulation in the economy of Ukraine / // VUZF review. – VUZF, Sofia (Bulgaria). – No. 5(4). pp. 9-14. DOI: https://doi.org/10.38188/2534-9228.20.4.02*
17. *Kilar, J., Kaczmarski, M., Frączek, P., Pac, W., Kilar, M. & Bryndza M. (2024). Analysis of the results of management of productive and economic resources on organic farms specializing in beef cattle production. Ad Alta: Journal of Interdisciplinary Research, 14(2), 463-467.*
18. *Britchenko I. (2019). Financial decentralization in Ukraine: prerequisites, problems, prospects / Britchenko Igor, Maksym Bezpartochnyi, Natalia Maslii // VUZF review. Sofia (Bulgaria). No. 4(4), pp. 25-44.*
19. *Halina Kalandyk, Jolanta Dyndur. Stres w pracy i sposoby radzenia sobie z nim wśród pielęgniarek zatrudnionych w oddziałach szpitalnych w dobie pandemii Covid-19 [W:] Pielęgniarki i pielęgniarstwo dla zdrowia nas wszystkich. Red. Kędra E, Milecka D., Garwacka-Czachor*

E., Gurowiec P. Głogów 2023, Państwowa Akademia Nauk Stosowanych w Głogowie, s. 77.

20. *Britchenko I. (2021). Social entrepreneurship as an instrument of development of small and medium entrepreneurship in Ukraine / Lysiuk Oleksandra, Britchenko Igor // VUZF review. – VUZF, Sofia (Bulgaria). – No. 6(1), pp. 38-48. DOI: 10.38188/2534-9228.21.6.04.*
21. *Jolanta Dyndur. Covid-19 – problem współczesnego świata [W:] Wymiar współczesnych zagrożeń człowieka w teorii i zagadnieniach praktycznych – ujęcie interdyscyplinarne. Tom I. Red. Stradomska M., Łódź 2021, Wydawnictwo Naukowe Archaegraph, s. 11-30.*
22. *Levchenko Iaroslava, Lošonczi Peter, Britchenko Igor, Vazov Radostin, Zaiats Olga, Volodavchyk Viktoriia, Humeniuk Iryna, Shumilo Oleksii (2021). Development of a Method for Targeted Financing of Economy Sectors Through Capital Investment In: The Innovative Development, Eastern-European Journal of Enterprise Technologies, 5 (13-113), pp. 6-13. DOI: 10.15587/1729-4061.2021.243235.*
23. *Pac, W. (2006). Dynamika przeobrażeń samorządowych w aspekcie kreowania podmiotowości jednostek i grup społecznych. Seminare. Poszukiwania naukowe, 23(1), 195-212.*
24. *Bezpartochnyi M., Britchenko I. (2022). Decentralization and rural development: case study of Ukraine. Research for Rural Development, Vol. 37, pp. 135–142. DOI: 10.22616/rrd.28.2022.020.*
25. *Kalandyk Halina, Dyndur Jolanta. Assessment of the Quality of Life in Patients with Multiple Sclerosis. Ocena jakości życia pacjentów chorych na stwardnienie rozsiane. [W:] Pielęgniarstwo Neurologiczne i Neurochirurgiczne. The Journal of Neurological and Neurosurgical Nursing 2021; 10(2): 58-64.*
26. *Britchenko Igor (2019). Key sources when formulating competitive advantages for hotel chains / Oleksandr P. Krupskyi, Oleksii Dzhusov, Nataliia Meshko, Igor Britchenko, Artem Prytykin // Tourism: An International Interdisciplinary Journal, Vol. 67 No. 1, pp. 34-46. (https://hrcak.srce.hr/218374).*
27. *Magdalena Młynarska, Grzegorz Nowicki, Barbara Ślusarska, Renata Korecka, Jolanta Dyndur, Jacek Jagnicki. Determinanty społeczno – demograficzne, a aktywność zawodowa osób z niepełnosprawnością fizyczną z województwa lubelskiego.(Socio-demographic determinants, and professional activity of people with physical disabilities from the Lublin province.). [W:] IV Ogólnopolska Konferencja Naukowo-Szkoleniowa Medycyna Personalizowana: Genom-niepełnosprawność-edukacja-pacjent-technologie. Lublin, 27-28.11.2018. Streszcz. Red. Marcin Czop, Janusz Kocki, Anna Bogucka-Kocka, Wojciech Kocki, Bartłomiej Kwiatkowski, Natalia Przesmycka s. 128. Lublin 2018,*

Wydawnictwo Polihymia, 978-83-7847-569-9.
28. *Balueva Olga, Syvolap Larysa, Pryimuk Olga, Lošonczi Peter, Britchenko Igor, Popova Yuliia (2022). Ensuring Innovative Development of the Marine Transport Management System in the Context of the Formation Ofthe Global Digital Economy. In : AD ALTA: Journal of Interdisciplinary Research. Vol. 12, Issue 1, Special Issue XXV. Hradec Králové, Czech Republic: Academic Association MAGNANIMITAS, Pages: 88 – 92.*
29. *Kilar, J., Kaczmarski, M., Pac, W., Frączek, P., & Kilar, M. (2024). Food Security Control System in Poland. Politics & Security, (3), 84-92.*
30. *Britchenko I. (2019). Blockchain Technology in the Fiscal Process of Ukraine / I. Britchenko, T. Cherniavska // Списание "Икономически изследвания (Economic Studies)". – Институт за икономически изследвания при БАН, София (България). Vol. 28, Iss. 5, pp. 134-148.*
31. *Maria Obara, Jolanta Dyndur, Marianna Charzyńska-Gula. Wpływ pandemii COVID-19 na pracę zawodową i życie prywatne pracowników służby zdrowia [W:] Pandemia od środka. Badania naukowe i doświadczenia członków społeczności akademickiej Państwowej Uczelni Zawodowej im. prof. Stanisława Tarnowskiego w Tarnobrzegu w okresie pandemii COVID-19 w latach 2020 – 2022. Red. Charzyńska-Gula M., Szylar A., Maciaszczyk P., Rożek G. Tarnobrzeg 2023, Wydawnictwo Państwowej Uczelni Zawodowej im. prof. Stanisława Tarnowskiego w Tarnobrzegu, s. 30-45.*
32. *Britchenko Igor. (2018). The Comparison of Efficiency and Performance of Portuguese and Ukrainian Enterprises / Igor Britchenko, Ana Paula Monte, Igor Kryvovyazyuk, Lidiia Kryvoviaziuk // Списание "Икономически изследвания (economic studies)". – Институт за икономически изследвания при БАН, София (България). – No. 1, P. 87-108.*
33. *Jolanta Dyndur, Marlena Stradomska. Monoprofile Medical Simulation Centres – Selected Issues [W:] Innovative Teaching Methods. Project Management in Practice. Red. Pokrzycka L., Lublin 2022, Maria Curie-Skłodowska University Press, s. 117-131, ISBN 978-83-227-9637-5.*
34. *Ostapenko Tetiana, Britchenko Igor, Lošonczi Peter (2021). Research of the intelligent resource security of the nanoeconomic development innovation paradigm. In : Baltic Journal of Economic Studies. Riga, Latvia : Baltija Publishing, Volume 7, Number 5. pp 159-169. DOI: https://doi.org/10.30525/2256-0742.*
35. *Kilar, J., Kaczmarski, M., Pac, W., Frączek, P., Kilar, M., & Turoń, A. (2024). The impact of implementing agri-environmental-climate*

commitments on the economic security of polish farmers from the Podkarpacie region. Politics & Security, 9(3), 68-83.

36. *Britchenko I. (2020). Economic Theory / I. Dmytriiev, I. Britchenko, Ya. Levchenko, O. Shershenyuk, M. Bezpartochnyi. Sofia : Professor Marin Drinov Publishing House of BAS, 218 p.*
37. *Stradomska Marlena, Dyndur Jolanta. The threats of the 21st century – selected aspects – addictions, modern didactic methods [W:] Humanistic Corpus. Issue 44. Collection of scientific articles on contemporary problems of philosophy, cultural studies, psychology, pedagogy and history, National Pedagogical Drahomanov University. Faculty of History and Philosophy, s. 67-72.*
38. *Britchenko Igor (2019). Central banks as leaders in ensuring financial stability / Viktoriia Biloshapka, Igor Britchenko, Iryna Okhrymenko // Advances in Social Science, Education and Humanities Research. – Atlantis Press: Proceedings of the 3rd International Conference on Social, Economic and Academic Leadership (ICSEAL 2019). Volume 318, May 2019. pp. 173-181. (https://www.atlantis-press.com/proceedings/icseal-19/125909033).*
39. *Pac, W. (2024). Demographic and social consequences of the Russo-Ukrainian war for Ukraine. Politics & Security, 9(3), 53-67.*
40. *Britchenko Igor (2019). Banking liquidity as a leading approach to risk management / Stanislav Arzevitin, Igor Britchenko, Anatoly Kosov // Advances in Social Science, Education and Humanities Research. – Atlantis Press: Proceedings of the 3rd International Conference on Social, Economic and Academic Leadership (ICSEAL 2019). – Volume 318, May 2019. pp. 149-157. (https://www.atlantis-press.com/proceedings/icseal-19/125909030).*
41. *Dyndur Jolanta. Globalizacja a choroby zakaźne [W:] Medycyna XXI wieku w ujęciu globalnym i interdyscyplinarnym, Red. Szylar A., Charzyńska-Gula M., Maciaszczyk P., Państwowa Uczelnia Zawodowa im. Prof. Stanisława Tarnowskiego w Tarnobrzegu, Tarnobrzeg 2020, s. 11-22.*
42. *Манолов, Л. Възрожденският национализъм и гарантиране сигурността на българското общество при разпадането на Османската империя /70-те години на 18-ти век – 80-те години на 19-ти век/ /монография под печат/.*
43. *Pac, W. (2024). Humanitarian Assistance for War Refugees from Ukraine: A Case Study of the Podkarpacki Branch of the Polish Red Cross. Politics & Security, 9(3), 36-52.*
44. *Britchenko I. (2020). Development of methodology of alternative rationale for financial ensuring of bridges building / Britchenko Igor, Maksym Bezpartochnyi, Yaroslava Levchenko // VUZF review. –*

VUZF, Sofia. No. 5(1), pp. 43-49.
45. *Britchenko I. (2020). Optimization of commodity stocks the enterprise by means of HML-FMR clustering / I. Britchenko, M. Bezpartochnyi // Financial and credit activities : problems of theory and practice. Iss. 3 (34), pp. 259–269. DOI: 10.18371/fcaptp.v3i34. 215521*
46. *Jolanta Dyndur. Aspiracje i bariery a jakość życia osób niepełnosprawnych fizycznie na terenie województwa lubelskiego, Łódź 2023, Wydawnictwo Naukowe Archaegraph, ISBN 978-83-67527-57-6*
47. *Britchenko I. (2018). Code of ethics for SMES: substantiating the necessity and willingness to implement in Ukraine / Larysa Antoniuk, Igor Britchenko, Yevheniia Polishchuk, Nataliia Rudyk, Yuliia Sybirianska // Problems and Perspectives in Management, Volume 16, Issue 3, P. 150-162.*
48. *Pac, W. (2023). Legal and Institutional Conditions for Prosecuting Smuggling of Immigrants Across the Eastern Border of the Republic of Poland as an External Border of The European Union. Przegląd Policyjny, 147, 224-239.*
49. *Britchenko Igor (2018). Reputation risks, value of losses and financial sustainability of commercial banks / Kunitsyna N., Britchenko I., Kunitsyn I. // Entrepreneurship and Sustainability Issues. 5(4): 943-955. https://doi.org/10.9770/jesi.2018.5.4(17).*
50. *Stradomska Marlena, Jolanta Dyndur. Wyzwania XXI wieku na podstawie studium przypadku ze świadczonej pomocy psychologiczno-pedagogicznej w telefonie wsparcia UMCS [W:] Edukacja współczesna: zagrożenia i nadzieje. Red. Bartkowicz Z., Wydawnictwo PUZ Tarnobrzeg, 2022, ISBN 978-83-963516-1-6*
51. *Bezpartochnyi, M., Britchenko, I., & Bezpartochna, O. (2022). Financial losses of Ukraine's agricultural exports and ensuring food security during martial law. VUZF Review. 7(2). 193-204.*
52. *Jolanta Dyndur, Marlena Stradomska. E-learning Issues on the Example of Selected Applications – Evernote, Lumosity, Pomotodo [W:] Innovative Teaching Methods. E-learning in Poland and Belgium. Red. Pokrzycka L., De Lièvre B., Lublin 2022, Maria Curie-Skłodowska University Press, s. 65-77, ISBN 978-83-227-9671-9.*
53. *Манолов, Л. Създаване на институционални гаранции за защита на националната сигурност на България след Освобождението. Национална сигурност, бр. 4, 2020 г., с. 41-46.*
54. *Pac, W. (2022). Prawne i instytucjonalne uwarunkowania ścigania przestępstw przerzutu imigrantów przez wschodnią granicę Rzeczypospolitej Polskiej jako zewnętrzną granicę Unii Europejskiej. Przegląd Policyjny, 147(3), 224-239.*
55. *Bezpartochnyi M., Bezpartochna O. (2023). Using territorial marketing*

to ensure spatial development of regional agricultural systems in Ukraine during martial law. Research for Rural Development, Vol. 38, 102-107. DOI:10.22616/RRD.29.2023.015.

56. *Dyndur Jolanta. Metoda symulacyjna w procesie nauczania – wybrane aspekty nauczania pielęgniarstwa [W:] Wymiar współczesnych zagrożeń człowieka w teorii i zagadnieniach praktycznych – ujęcie interdyscyplinarne. Tom VI. Red. Stradomska M., Łódź 2022, Wydawnictwo Naukowe Archaegraph, s. 123-133.*
57. *Britchenko I. (2020). Pandemic economic crisis: essence, reasons, comparative characteristics, opportunities / Britchenko I., Bezpartochnyi M. // New trends in the economic systems management in the context of modern global challenges: collective monograph / scientific edited by M. Bezpartochnyi // VUZF University of Finance, Business and Entrepreneurship. – Sofia: VUZF Publishing House "St. Grigorii Bogoslov", pp. 8-19.*
58. *Grzegorz Nowicki, Barbara Ślusarska, Magdalena Młynarska, Jolanta Dyndur, Barbara Niedorys, Agnieszka Chrzan-Rodak, Marta Łuczyk. Poczucie koherencji (SOC) i jakość życia osób niepełnosprawnych fizycznie zamieszkałych na terenie województwa lubelskiego.(The sense of coherence (SOC) and quality of life individuals with physical disabilities living in Lublin province.), [W:] Dni Medycyny Społecznej i Zdrowia Publicznego. Międzynarodowa Konferencja Naukowa: "Koordynowana opieka zdrowotna - kierunek zmian systemu opieki zdrowotnej". Łomża-Grodno, 20-22.09.2019 [online]. Streszcz s. 56-57.*
59. *Britchenko I. (2019). Potential of Sustainable Regional Development in View of Smart Specialisation / Igor Britchenko, Tetiana Romanchenko, Oleksandr Hladkyi // Списание «Икономически изследвания (Economic Studies)». – Институт за икономически изследвания при БАН, София (България). No. 6. Volume 28, Issue 6, pp. 88-110.*
60. *Kalandyk Halina, Dyndur Jolanta. Assessment of the Knowledge of Nursing Students about the Quality of Life of Patients after Stroke. Wiedza studentów kierunku pielęgniarstwo na temat jakości życia chorych po udarze mózgu [W:] Pielęgniarstwo Neurologiczne i Neurochirurgiczne. The Journal of Neurological and Neurosurgical Nursing, 2020, 9(4), 132–137.*
61. *Манолов, Л. Полагане основите на политиката за защита на националната сигурност на България. Национална сигурност, бр. 3, 2020 г., с. 58-63.*
62. *Jolanta Dyndur. Pandemia SARS-CoV-2 w świetle moich doświadczeń i refleksji jako członka społeczności akademickiej [W:] Pandemia od środka. Badania naukowe i doświadczenia członków społeczności akademickiej Państwowej Uczelni Zawodowej im. prof. Stanisława*

Tarnowskiego w Tarnobrzegu w okresie pandemii COVID-19 w latach 2020 – 2022. Red. Charzyńska-Gula M., Szylar A., Maciaszczyk P., Rożek G. Tarnobrzeg 2023, Wydawnictwo Państwowej Uczelni Zawodowej im. prof. Stanisława Tarnowskiego w Tarnobrzegu, s. 187-191.

63. *Манолов, Л. Идеите на Софроний Врачански за изграждането на бъдещата българска държава и нейната национална сигурност /от края на 18-ти век и началото на 19-ти век/. Политика и сигурност, бр. 1, 2020 г., с. 33-47*
64. *Pac, W. (2018). Służby specjalne w sferze bezpieczeństwa państwa. Człowiek - społeczeństwo - bezpieczeństwo, Wyd. Państwowa Wyższa Szkoła Wschodnioeuropejska w Przemyślu, 42-58.*
65. *Britchenko Igor (2019). University innovative hubs as points of growth of industrial parks of Ukraine / Britchenko I., N. Kraus, K. Kraus // Financial and credit activity: problems of theory and practice, Volume 4, No. 31, 2019. pp. 448-456. http://fkd.org.ua/article/view/190996.*
66. *Stradomska Marlena, Jolanta Dyndur. Subjective and mental well-being [W:] Humanistic Corpus. Issue 45. Collection of scientific articles on contemporary problems of philosophy, cultural studies, psychology, pedagogy and history, National Pedagogical Drahomanov University. Faculty of History and Philosophy, s. 68-72.*
67. *Манолов, Л. Проектът на Васил Левски за бъдещата българска държава и проблемите на националната сигурност. Сигурност и икономика в несигурния свят - дилеми и предизвикателства. Сборник с доклади от юбилейната международна конференция на ВУСИ. Пловдив, 2019 г., с. 224-229.*
68. *Grzegorz Józef Nowicki, Magdalena Młynarska, Jolanta Dyndur, Barbara Ślusarska, Jacek Jagnicki, Ewa Chemperek. Aktywność zawodowa osób z niepełnosprawnością fizyczną z województwa lubelskiego a czynniki społeczno-demograficzne. (The professional activities of persons with physical disabilities from Lublin province in the light of social and demographic factors). [W:] Rozprawy Społeczne 1/2018 vol.12, Państwowa Szkoła Wyższa im. Papieża Jana Pawła II w Białej Podlaskiej, Biała Podlaska, s. 80-85.*
69. *Britchenko I. (2020). Issues of shaping the students' professional and terminological competence in science area of expertise in the sustainable development era / Olena Lavrentieva, Victoria Pererva, Oleksandr Krupskyi, Igor Britchenko, Sardar Shabanov // E3S Web of Conferences. – FDP Sciences, France. Volume 166, 1003. 9 pages. https://doi.org/10.1051/e3sconf/202016610031.*
70. *Grzegorz Nowicki, Magdalena Młynarska, Jolanta Dyndur, Barbara Ślusarska, Anna Wiśniewska, Agnieszka Bartoszek, Katarzyna Kocka.*

Poczucie koherencji (SOC) i jakość życia osób niepełnosprawnych fizycznie zamieszkałych na terenie województwa lubelskiego.(The sense of coherence (SOC) and quality of life individuals with physical disabilities living in Lublin province.), [W:] IV Ogólnopolska Konferencja Naukowo-Szkoleniowa Medycyna Personalizowana: Genom-niepełnosprawność-edukacja-pacjent-technologie. Lublin, 27-28.11.2018. Streszcz. Red. Marcin Czop, Janusz Kocki, Anna Bogucka-Kocka, Wojciech Kocki, Bartłomiej Kwiatkowski, Natalia Przesmycka s. 133. Lublin 2018, Wydawnictwo Polihymia, 978-83-7847-569-9.

71. *Стефанова, Д., В. Василев; И. Бритченко (2023). ЗА НОВИТЕ РЕАЛНОСТИ В УПРАВЛЕНИЕТО И КОМПЕТЕНЦИЯТА – ИНФОРМАЦИОННА СИГУРНОСТ; Сигурност и отбрана 2 (2023): 105-118. http://institute.nvu.bg/sites/default/files/inline-files/2023-2-08-stefanova-vasilev-britchenko.pdf.*
72. *Halina Kalandyk, Jolanta Dyndur. Poczucie własnej skuteczności a przestrzeganie zaleceń profilaktycznych wśród personelu medycznego w dobie pandemii COVID-19 [W:] Pandemia od środka. Badania naukowe i doświadczenia członków społeczności akademickiej Państwowej Uczelni Zawodowej im. prof. Stanisława Tarnowskiego w Tarnobrzegu w okresie pandemii COVID-19 w latach 2020 – 2022. Red. Charzyńska-Gula M., Szylar A., Maciaszczyk P., Rożek G. Tarnobrzeg 2023, Wydawnictwo Państwowej Uczelni Zawodowej im. prof. Stanisława Tarnowskiego w Tarnobrzegu, s. 98-106, ISBN: 978-83-963516-8-5.*
73. *Britchenko I. (2020). Areas and Means of Formation of Transport Regional Complexes and Mechanisms for Managing their Competitiveness in Ukraine / Igor Britchenko, Liliya Savchenko, Inna Naida, Oleksandr Tregubov // Списание "Икономически изследвания (Economic Studies)". Институт за икономически изследвания при БАН, София (България). No. 3. Volume 32, Issue 3. pp. 61-82.*
74. *Ostapenko Tetiana, Britchenko Igor, Lošonczi Peter, Matveiev Serhii (2022). Identification of regularities in the development of the baby economy as a component of the nanolevel of economic system. In: Eastern-European Journal of Enterprise Technologies, Vol 1/13 (115), pp. 92-102. DOI: https://doi.org/10.15587/1729-4061.2022.252334.*
75. *Grzegorz Józef Nowicki, Jolanta Dyndur, Magdalena Prylińska, Barbara Ślusarska, Magdalena Brodowicz-Król, Grażyna Rożek. Poczucie koherencji (SOC) i jakość życia osób niepełnosprawnych fizycznie zamieszkałych na terenie województwa lubelskiego [W:] Pielęgniarstwo z perspektywy praktyki, nauki i edukacji. Tom II: Edukacja i badania. Red. Nowicki G., Płocica D., Ślusarska B. Tarnów 2023, Wydawnictwa Akademii Tarnowskiej, s. 85-112, ISBN: 978-83-*

966917-3-6.
76. *Манолов, Л. Социални и идейни основи на ранния български национализъм от края на 18-ти век и началото на 19-те век. Политика и сигурност, бр.1, 2018 г., с. 57- 81.*
77. *Jolanta Dyndur, Halina Kalandyk, Tomasz Widz. Opis przypadku dziewczynki z chorobą Niemanna-Picka typu C. Case report of a girl with Niemann-Pick type C disease. [W:] VII Konferencja „Choroby rzadkie nie tylko w programie nauczania" Szczecin, Wrocław, Poznań, Olsztyn, Tarnobrzeg (on-line), 18 maja 2021, s. 8, 36-38, Polskie Towarzystwo Przyrodników im. Kopernika, Kraków 2021, ISBN 978-83-961656-4-0.*
78. *Britchenko I. (2021). The establishment of the inflation target and the corridor of fluctuations of the target: analysis of world trends and practice in Ukraine / Shapran V., Britchenko I. // VUZF Review. – VUZF, Sofia (Bulgaria). – No. 6(3), pp. 13-20. DOI: 10.38188/2534-9228.21.3.02.*
79. *Bezpartochnyi M., Britchenko I., Prylutska L. (2023). Research on export logistics of agricultural products in Ukraine during martial law and ensuring food security. Current issues of the management of socio-economic systems in terms of globalization challenges: scientific monograph. Košice, Vysoká škola bezpečnostného manažérstva v Košiciach, pp. 479-498. https://doi.org/10.5281/zenodo.7798978*
80. *Britchenko Igor (2019). Consulting Services in Agriculture / Nadiia Serskykh, Igor Britchenko // Modern Development Paths of Agricultural Production. Springer International Publishing, pp. 217-223. https://doi.org/10.1007/978-3-030-14918-5_23.*
81. *Bezpartochnyi M., Britchenko I. (2022). Export logistics of agricultural products of Ukraine in the context of ensuring food security during martial law / Current issues of security management during martial law: scientific monograph. – Košice: Vysoká škola bezpečnostného manažérstva v Košiciach, 2022. – pp. 163-184.*

Yuri Kindzerski
ORCID: https://orcid.org/0000-0002-4432-6526
Doctor of Econ. Sci., Senior Researcher
Institute for Economics and Forecasting of the National Academy of Sciences of Ukraine (Kyiv, Ukraine)

INDUSTRIAL PARKS IN THE TRANSFORMATION OF ECONOMIC SYSTEMS: OPPORTUNITIES FOR UKRAINE

https://doi.org/10.5281/zenodo.15707562

Abstract
The paper reveals the importance of industrial parks for the transformation of economic systems. It is shown that these enti-ties, in terms of their institutional, organisational and spatial structure, are an effective mechanism for complementary combi-nation of structural and fundamental development factors neces-sary to ensure sustainable and long-term industrialisation on an innovative basis. On the example of some leading countries, the author analyses the main indicators of industrial parks and the peculiarities of preferences provided by the state for their crea-tion and operation. The potential of industrial parks in ensuring the post-war recovery and modernisation of Ukraine's economy to overcome technological backwardness and dependence on developed countries is pointed out. The problems and limitations of industrial parks in Ukraine are revealed. Taking into account the world experience and challenges faced by the country, rec-ommendations are developed to improve the efficiency of their organisation and operation.

Keywords: *industrial parks, structural transformations, post-war recovery, growth drivers.*

Introduction

The full-scale armed aggression of the Russian Federation against Ukraine has caused catastrophic damage to the Ukrainian economy, significantly undermining the country's industrial potential[1] , which

[1] *During the war, the World Bank estimates that the total losses of the Ukrainian economy by the end of 2024 amounted to more than USD 213.9 billion. Of these, $142.3 billion were in industry. Due to the destruction of production facilities in the*

even before the war was characterised by significant structural and technological backwardness compared to developed countries (Kindzerskyi, 2021). Therefore, post-war reconstruction should be aimed not at restoring outdated production, but at creating new, high-tech and highly productive production, which will ensure overcoming the country's backwardness and allow rebuilding other sectors of the Ukrainian economy, such as the construction industry, energy, agriculture, transport, and medicine. Modernisation of industry on an innovative basis requires appropriate institutional and organisational mechanisms for a complementary combination of structural and fundamental factors of development, which is an unconditional condition for its effectiveness (Rodrik, 2004). Structural factors include the priority development of growth-driving industries, while fundamental factors include the development of education, science, and infrastructure, which together ensure the sustainability of production in the long run. Among the effective mechanisms for combining structural and fundamental factors that have emerged in global practice, industrial parks should be highlighted. They allow concentrating and ensuring the interconnection and interaction of production, education and science entities within a separate territory with specially created infrastructure.

In this context, industrial parks (IPs) should be seen as a key instrument of the policy of recovery and structural transformation of Ukraine's industry. By their institutional design, they should become a kind of growth driver, as they will create a favourable eco-environment in a certain territory for the emergence and development of new advanced industries, attracting the potential of local research and educational institutions. This will launch a new wave of industrialisation in Ukraine, adapted to the conditions of the green transition and integration into the European and global economic space. In this regard, it is valuable to take into account the experience of industrial parks around the world to formulate a strategy for their development in Ukraine.

---

combat zones and Russian missile attacks on industrial and infrastructure facilities in the rear regions of Ukraine, industrial production decreased by 25% in 2022 and by another 17.7% in 2023, with the level of capacity utilisation of enterprises in 2024 not exceeding 49% (World Bank, 2025).

Results and Discussion

Today, the concept of industrial parks is relatively well-established. It is believed to be *a specially designated area with engineering, logistics and management infrastructure organised for the purpose of concentrating and developing production, innovation, logistics and research and development enterprises, which functions and is managed as a single entity on the basis of preferences granted by law*. This distinguishes the IP from the usual industrial development, as it is characterised by organisation, infrastructure readiness, regulation of functioning as an integral object, and preferences from the state. In some leading countries and scientific sources, the definition of industrial parks has its own emphasis, reflecting the state's approach to economic policy (Table 1.5).

Table 1.5

Definitions for understanding industrial parks

Country	Institution/ source	Definition	Accent
USA	U.S. Economic Development Administratio n (EDA)	An industrial park is a tract of land developed and zoned for the purpose of industrial development, usually with pre-built infrastructure and offered with incentives to attract businesses.	Infrastructural support and incentives for entities
Korea	Industrial Park Development Act (2006)	An industrial park is a designated land area constructed and managed according to a master development plan, where manufacturing and business-supporting infrastructure is concentrated and regulated under industrial zoning regulations.	Linkage to the country's master development plan
China	China's National Development and Reform Commission	An industrial park is a geographic zone approved by the State Council or local government, providing infrastructure, preferential	Organisation around growth-driving industries

Country	Institution/ source	Definition	Accent
		policies, and services to industrial firms, often organised around a dominant industry or cluster.	
EU	European Commission (EU Smart Specialisation Platform)	Industrial parks are spatial concentrations of industries and services that benefit from shared infrastructure, innovation support, and coordinated governance to achieve higher competitiveness and resource efficiency.	Cluster concentration of industries and services with coordinated management
	Stiglitz, Lin (2013)	Industrial parks (or cluster-based industrial zones) are geographical concentrations of interconnected firms with dedicated infrastructure and services used as instruments of state-led structural transformation.	A tool for structural transformation of the economy
	OECD Glossary of Statistical Terms	A planned and zoned area for the location of industrial development, usually with infrastructure and regulatory incentives provided by the government.	Infrastructural support and incentives for entities

Source: compiled by the author

The formation and functioning of industrial parks is based on scientific evidence, among other things:

- *Cluster theory of competitive advantage (M. Porter)*. Industrial parks are viewed as organised spatial centres where interconnected enterprises, suppliers, educational and research institutions, government authorities and business support institutions are concentrated. According to Porter, the key source of a country's competitiveness is not individual companies, but groups interacting within a cluster structure (Porter, 1998). Industrial parks play the role of institutional "cluster infrastructure", providing common

infrastructure, access to human resources, knowledge transfer, logistics and legal support. In this sense, an IP is not just a business location, but a platform for clustering production, where both competition and cooperation – sources of productivity, innovation and growth – are enhanced.

- *New economic geography and agglomeration economics (P. Krugman)*. Paul Krugman has shown that businesses tend to concentrate spatially around centres with lower transport costs, access to large markets and skilled labour (Krugman, 1991). The agglomeration effect means that the more businesses are concentrated in one area, the more advantages there are for new players – a "core-periphery model" is formed. Industrial parks, as specially equipped production clusters, form such centres of agglomeration: they minimise logistics costs, provide access to common infrastructure, and form "common markets" for labour and suppliers. These mechanisms explain the high level of internal and external investment attractiveness of SEs.

- *The theory of industrial policy (D. Rodrik, J. Stiglitz)*. According to D. Rodrik, the state should be involved in shaping the institutional environment for the development of "new economic directions" that the market is not able to create properly on its own (Rodrik, 2004). This requires state selection of priorities, both in the form of direct support to individual firms and by creating a favourable environment for experimentation. Industrial parks, according to Rodrik's logic, are regulated, controlled spaces ("bounded experimentation spaces") in which the state can test various incentive instruments – tax breaks, access to infrastructure, R&D programmes – and respond quickly to success or failure. Thus, SEs become physical centres of institutional learning, where a new industrial structure is formed. J. Stiglitz has a similar position, considering the IP as an operational unit of selective industrialisation (Stiglitz & Lin, 2013). The advantage of such a unit is the possibility of flexible adjustment of incentives and institutions based on experiments and policy adjustments. The state, according to Stiglitz, should not "pick winners" but "create an environment for winning". IPs create such an environment as they are a tool for mobilising finance, technology, and human capital in a regulated space.

- *The theory of innovation systems (B.-A. Lundvall)*. It interprets innovations as the result of interaction between institutions – firms, universities, the state, and technology transfer centres (Lundvall, 2007). Industrial parks in this construction are materialised innovation ecosystems where an environment for the exchange of knowledge, competences, and technologies is formed. An internal innovation system can function within an IP – with the integration of accelerators, research laboratories, training centres, development institutes, – to ensure a full innovation cycle: from idea to production. The effect of "institutional thickness" – the effect of close interaction between actors – is particularly valuable.

- *Triple helix theory (H. Etzkowitz)*. It envisages a tripartite interaction between the university, business and the state, which is capable of generating sustainable innovative development (Etzkowitz & Leydesdorff, 2000). Here, industrial parks are not just a production zone, but an "innovation hub" where a synergy of educational, scientific, business and administrative actors is formed. Successful IPs, especially those in Israel, South Korea and the United States, combine R&D infrastructure, incubators, venture capital funds, and startup schools. This allows not only to speed up the innovation cycle but also to reduce transaction costs for its launch.

In general, the theoretical provisions emphasise that industrial parks create synergistic and agglomeration effects from the territorial concentration of production, which dramatically increases labour productivity, and their activities are ensured by a complementary combination of structural (production) and fundamental (science, education, infrastructure) factors of industrialisation. They act as drivers, accelerators, incubators, and poles of production growth and the formation of its new structure.

The evolution of industrial parks around the world has led to the differentiation of their forms and specialisation. This makes it possible to adapt the model of industrial parks to the specifics of the territories, as well as to flexibly adjust the state policy to maintain the sustainability of economic development and ensure regional alignment, depending on their condition. In global practice, industrial parks are classified according to the following basic criteria: functional purpose, industry specialisation, form of ownership, sources of financing, and management model (Table 1.6).

Table 1.6

Typology of industrial parks in international practice

Criterion	Main types
Functional purpose	Production, logistics, innovation (technological), agro-industrial, eco-industrial, mixed
Industry specialisation	Metalworking, machine building, IT, biotechnology, food, light industry
Form of ownership	Public, private, municipal, public-private
Sources of funding	Budgetary, international grants, loans, private capital
Management model	Private management, state management company, municipality, hybrid

Source: compiled by the author

The distribution of industrial parks by specialisation varies between countries. For example, in the US and the EU, the share of manufacturing parks is less than half of the total, while in China, large specialised industrial parks with state participation predominate (60%) (Table 1.7). In relative terms, the EU has twice as many innovation and technology parks (30%) as the US (14%).

Table 1.7

Specialisation and key performance indicators of industrial parks in the US, China and the EU, 2021-2023

Park type	USA	China	EU
Total IP, units	400	2500	1100
Production	47%	60%	41%
Logistics	18%	15%	21%
Innovative, technological	14%	20%	30%
Agricultural and industrial	8%	3%	4%
Mixed	13%	2%	4%
Selected performance indicators			
Employment, *million people / % of total employment*	3.5 / 2.1%	~30 / ~20%	7.5 / ~5%
Value added, *% of GDP*	4.2	~33	~12
Labour productivity, *compared to the national average, %*	+ 20%	+ 18%	+ 27%

Source: Eurostat, 2022; NBSC, 2023; OECD, 2023; U.S. EDA, 2022-2023; World Bank, 2023

The share of IPs in the structure of employment and gross value added also varies by country. The highest share of industrial parks is in China, where they are used as a key tool for accelerated industrial development. Labour productivity in industrial parks is significantly higher than the national average, which confirms the theoretical assumption that they create synergistic and agglomeration effects through the concentration and clustering of production.

The creation of industrial parks is closely linked to the industrial policy of countries, which is once again on the agenda, given the negative consequences of large-scale deindustrialisation, technological dependence of many countries, and the growth of social problems and poverty. Industrial parks concentrate clusters of high-tech enterprises that meet modern trends in scientific and technological progress and receive state preferences. Countries use a combination of instruments to stimulate the development of parks, including direct subsidies, tax benefits, regulatory preferences, and the creation of the necessary infrastructure at public expense – production transport and logistics, and energy (Table 1.8).

Table 1.8

Examples of regulatory support and preferences for industrial parks in selected countries

Country	Regulatory act	Preferences
USA	**Public Works and Economic Development Act (1965).** Lays the groundwork for federal funding of industrial parks through the Economic Development Administration (EDA); **Tax Cuts and Jobs Act (2017**). It provides for the creation of "Opportunity Zones", including industrial parks, to revive depressed and underdeveloped regions and territories. The zones provide tax incentives for investors.	Grants for EDA infrastructure. *Build to Scale* programmes for startups in technology parks. Local and state subsidies for land preparation.
EU	**EU Regulation No. 1303/2013.** Establishes general provisions on the European Structural Funds, in	Co-financing of industrial zones (up to 50-85% of project

Country	Regulatory act	Preferences
	particular on the financing of industrial parks by the European Regional Development Fund (ERDF). **Smart Specialisation Strategy (RIS3).** It sets out requirements for EU countries to use the smart specialisation approach when creating technology parks.	costs). Interreg programmes for the development of cross-border parks. Direct subsidies for the construction of R&D centres in parks.
China	**Law of the People's Republic of China on the Promotion of Private Education (2002), Foreign Investment Law (2020).** They provide direct incentives for private and foreign investment in special industrial zones. **The Made in China 2025 strategy.** Industrial parks are seen as platforms for breakthroughs in key industries such as robotics, AI, and biopharma.	Preferential taxation for park residents (up to 15% income tax). Direct subsidies for land lease. Bank financing through state development banks.
Korea	**Special Act on the Support for Industrial Complexes (2010)**. Regulates the creation and support for the development of industrial complexes. **"Creative Economy Innovation Centres" (2014).** Regulates the mechanism for supporting start-ups and industrial clusters based on parks.	Subsidies of up to 70% for infrastructure development. Industrial Complex Regeneration programme to modernise old parks. Reduced property tax for park residents.
Japan	**Industrial Cluster Plan (2001)**. Regulates the plan for the creation of industrial clusters, including industrial parks. **Law on Strengthening Industrial Competitiveness (2013).** Direct incentives for clusters and parks through tax incentives.	Subsidies for R&D in parks. SME support programmes in industrial zones. Special loans from Japanese development banks.

Country	Regulatory act	Preferences
Israel	**Encouragement of Capital Investments Law (1959,** as amended**).** Regulates incentives for companies in industrial parks, especially in the high-tech sector. **National programme of industrial zones "Technology Incubators Programme".** Regulates the provision of state funding for early-stage start-ups in parks.	Tax benefits for park participants. Direct government grants of up to 85% of R&D costs. Simplified regulatory regimes (fast-track licensing) for residents.

Source: compiled by the author

By actively promoting and developing industrial parks, governments are able to multiply the level of production and modernise its structure, increase employment, productivity, and income both within the regions where parks are located and in the country as a whole, revive and develop depressed areas, and reduce interregional inequality. The Chinese Shenzhen Park is an example of the high efficiency of an industrial park with a proper state policy for its development and support. Over the forty years of its operation, the annual volume of value added has increased 400 times, exports – 30 thousand times, and the average monthly salary – 40 times (Table 1.9).

Table 1.9

Changes in the performance indicators of the territory after the creation of an industrial park: the case of Shenzhen SEZ, China

Indicator	1980	2020	Changes
Value added, *billion USD*	< 1.0	> 400.0	400 times more
Exports, *billion USD*	0.01	> 300	30 000 times more
Number of residents, *units*	5	> 90000	18 000 times more
Unemployment, *per cent*	~ 20%	< 2%	10 times less
The average monthly salary, *USD*	30	1200	40 times more

Source: NDRC, 2023; World Bank, 2023

In Ukraine, industrial parks are just beginning to emerge as an industrial policy tool. In 2012, the Law on Industrial Parks was

adopted, but their active creation began in the 2020s after certain legislative shortcomings were addressed and tangible preferences were introduced for the entities involved. The Law of Ukraine stipulates that *"an industrial park is a territory defined ... in accordance with urban planning documentation and equipped with appropriate infrastructure, within which the participants of the industrial park may carry out economic activities in the field of processing industry, processing of industrial and/or household waste (except for waste disposal), alternative energy, energy storage, as well as scientific and technical activities, activities in the field of information and electronic communications..."* (Zakon Ukrainy, 2012). The advantage of such a definition is the expressed structural emphasis and priorities of economic activity, which is important in terms of overcoming the technological backwardness of the national economy.

The government's Strategy for the Development of Industrial Parks by 2030 envisages the creation of at least 100 functional IPs, attraction of over UAH 100 billion of investments (about USD 2.5 billion), creation of up to 50,000 new jobs, and an increase in the level of manufacturing in GDP (Cabinet of Ministers of Ukraine, 2023). To implement this strategy, a number of preferences are provided for industrial parks, including 0% income tax for residents (for up to 10 years); exemption from value added tax and customs duties on equipment imports; compensation of interest rates on loans; grants for grid connection and infrastructure development (Zakon Ukrainy, 2022).

In addition, the Ministry of Economy of Ukraine has also introduced a programme of state incentives for the creation of industrial parks (Ministry of Economy of Ukraine, 2025b). Under this programme, the state co-finances the construction of engineering and transport networks and partially reimburses the connection to the electricity grid. Each park can receive up to 50% of the cost of construction projects, and up to 80% for de-occupied territories. In 2024, 15 industrial parks received funds worth over UAH 1.13 billion to implement 34 projects to build the necessary engineering and transport infrastructure. This will allow at least 30 processing enterprises to be located on an area of more than 75,000 square metres. In 2025, the state budget of Ukraine allocates UAH 500

million for a programme to stimulate the creation of industrial parks.

As of March 2025, 91 parks were included in the State Register of Industrial Parks, with a total area of about 5,800 hectares. Lviv, Kyiv, Vinnytsya, and Odesa regions are the leaders in terms of the number of parks created (Table 1.10). These regions are also leaders in terms of investment, jobs created, potential output, and potential for job creation by 2030 (Table 1.11). In total, the amount of funds invested in parks today is about UAH 5.5 billion, the number of jobs already created is 7.5 thousand, and in the future, it is planned to create up to 50 thousand jobs by 2030, with a potential annual output of about UAH 30 billion.

Table 1.10

Industrial parks in Ukraine by region, March 2025

Region	**Quantity,** *units*	**Area,** *ha*	**Region**	**Quantity,** *units*	**Area,** *ha*
Lviv	7	720	Cherkasy	4	270
Kyiv	7	630	Poltava	4	220
Vinnytsya	7	590	Ternopil	3	180
Odesa	6	460	Volyn	3	160
Ivano-Frankivsk	5	350	other region	up to 3	<150
Dnipropetrovsk	5	310	-	-	-
Total	-	-	-	91	5800

Source: Ministry of Economy of Ukraine, 2025a

In terms of the types of activities of industrial parks in terms of invested funds, the largest share is accounted for by agro-processing and food production (about 38.6%), followed by machine building (21%), then production of electronic and energy equipment (13.2%), and production of paper products (10.5%) (Table 1.11).

Despite the progress made in recent years in shaping the legislative framework and launching incentive mechanisms, the development of industrial parks in Ukraine faces a number of institutional, regulatory, infrastructure, financial, investment, managerial and organisational problems, which limits the effectiveness of this tool for industrial transformation (Table 1.12).

Table 1.11

Industrial parks in Ukraine: investments, jobs and output by region and activity, March 2025

Region	Investments		Jobs created		Potential output by 2030		Potential job creation by 2030	
	million UAH	*%*	*units*	*%*	*million UAH*	*%*	*units*	*%*
Total	5500	100.0	7500	100.0	30000	100.0	50000	100.0
Lviv	720	13.1	950	12.7	3500	11.7	7500	15.0
Kyiv	680	12.4	900	12.0	3300	11.0	7200	14.4
Vinnytsya	610	11.1	870	11.6	3100	10.3	6900	13.8
Odesa	520	9,5	800	10.7	2800	9.3	6500	13.0
Ivano-Frankivsk	400	7.3	700	9.3	2400	8.0	5200	10.4
Dnipropetrovsk	390	7.1	680	9.1	2300	7.7	5100	10.2
Cherkasy	310	5.6	520	6.9	1900	6.3	4300	8.6
Poltava	280	5.1	480	6.4	1700	5.7	4000	8.0
Ternopil	240	4.4	420	5.6	1500	5.0	3700	7.4
Volyn	200	3.6	390	5.2	1400	4.7	3500	7.0
Activity type								
Agro-processing	1300	22.8	2000	22.5	7000	20.5	15000	23.4
Mechanical engineering	1200	21.1	1800	20.2	6800	19.9	13000	20.2
Food products	900	15.8	1300	14.6	5200	15.2	9000	14.0
Electronics	750	13.2	1200	13.5	4700	13.8	8500	13.2
Paper, packaging	600	10.5	1000	11.2	3900	11.4	7000	10.9
IT, logistics	550	9.7	900	10.1	3600	10.6	6700	10.4
Other	400	7.0	700	7.9	2900	8.5	5000	7.8

Source: Ministry of Economy of Ukraine, 2025a

In the context of the large-scale losses incurred by Ukraine's industry as a result of Russia's military aggression, as well as the challenges associated with European integration, the transition to a green economy and the needs for the development of the defence industry, the issue of building a new model of state policy for the

Table 1.12

Problems and limitations of creation and operation of industrial parks in Ukraine

Problems	Contents
Institutional and regulatory	Insufficient specification of procedures in regulations, in particular, for approving master plans, land allocation procedures, and grid connection rules. Poor coordination between executive authorities and local governments, which leads to delays in the registration and launch of parks. Difficulty in interacting with financial institutions, as there are no mechanisms for direct lending to individual entrepreneurs as legal entities.
Infrastructure	About 70% of the parks included in the register do not have full engineering support, which significantly reduces their attractiveness to investors. Lack of or outdated logistics service systems (railway, road, port, warehouse infrastructure). Uneven distribution of industrial parks across the country's regions – there is a shortage of existing or active projects in the east and south.
Financial and investment	Low level of access to bank financing: commercial banks do not consider individual entrepreneurs to be liquid objects for lending on their own. The absence of a development financial institution (state investment fund, national development bank) that could provide financing (full or partial) for infrastructure costs and the creation of key industries. Insufficient awareness of international investors about opportunities in Ukrainian IP, lack of a single English-language digital portal.
Management and organisational	Lack of trained management company teams that can ensure an adequate level of project and financial management. Weakness of local communities in promoting their parks, lack of a marketing strategy. Lack of mechanisms for "smart support" for investors at the stage of production location.

Source: compiled by the author

development of industrial parks arises. This policy should become a

key tool for implementing the strategy of technological transformation of the economy, restoring territories, integrating into global markets and strengthening the country's defence capability.

In view of the need to overcome the most acute problems of the Ukrainian economy, the following measures can be proposed for the development of industrial parks in Ukraine.

In terms of overcoming technological backwardness and ensuring the structural transformation of Ukraine's industry:

- prioritising high-tech sectors within the industrial parks: electronics, aerospace engineering (revival of domestic aircraft manufacturing, scaling up production of multi-purpose UAVs), robotics (including military), pharmaceuticals, chemicals, IT, biotechnology, green technologies, and power engineering. *Policy instruments*: industry licensing to allow only those companies that meet the specified technological parameters to enter the parks.

- establishing criteria for the localisation and deep processing of raw materials in the parks;

- affordable financing programmes for R&D projects and venture capital investment within industrial parks;

In terms of taking into account the requirements of the European Green Deal:

- transforming industrial parks into eco-industrial parks in accordance with UNIDO standards;

- introducing green certification of parks (energy efficiency, decarbonisation, circular production).

- creating a system of green incentives for parks and their residents: priority financing of environmentally friendly projects ("green" bonds, funds, bank guarantees, reduced rates for "green" loans);

- introducing mandatory requirements for energy efficiency and CO2 emissions for park residents.

In terms of proactive development of the defence industry to increase national security and resistance to the aggressor:

- creation of specialised defence industrial parks with a special legal regime;

- simplification of public procurement procedures for companies resident in the parks;

- direct state funding/co-financing for the modernisation of

existing and creation of new defence production facilities within the parks;

- connecting such parks to NATO cooperation programmes and relevant dual-use infrastructure.

In terms of overcoming the imbalance in the development of territories:

- introducing a gradation of state aid to parks depending on the level of socio-economic development of the region (maximum incentives for depressed regions);
- establishing separate funding programmes to support the creation of parks in rural areas and small towns;
- creating favourable conditions for the relocation of enterprises to industrial parks located in depressed regions;
- integrating park development into regional development plans and Smart Specialisation (S3) strategies.

Improving the institutional and legal support for parks:

- completion of harmonisation of Ukrainian legislation on industrial parks with UNIDO standards;
- establishment of a separate unit within the Ministry of Economy of Ukraine with the authority to regulate, monitor, certify and coordinate the activities of industrial parks;
- introducing a single integrated online platform for the administration, monitoring and accounting of parks and their residents;
- launching the National Programme for the Development of Industrial Parks as a separate budget programme with guaranteed funding.

In summary, given the positive experience of industrial parks in the world, it should be noted that in Ukraine, these territorial and economic structures, with active state support, should become the core of the country's accelerated reindustrialisation, drivers and accelerators of growth at both the regional and national levels, and national levels, which will allow to overcome both the country's technological backwardness and interregional inequality in a relatively short time, strengthen the currently weak links between education, science and production, and create the preconditions for resilient and sustainable development of the country on an innovative basis.

Conclusions

Ukraine is facing an urgent task of overcoming significant technological backwardness and dependence on developed countries, continuing and strengthening armed resistance to the military aggression of the Russian Federation, and rapid post-war economic recovery, on a fundamentally new technological basis, while taking into account the requirements of the Green Transi-tion. It is known that the success, duration and sustainability of economic development on an innovative basis is ensured by a complementary combination of structural and fundamental fac-tors of development. In this regard, the most challenging task, both in global practice and in Ukraine, is to find an effective and reliable mechanism for combining these factors to achieve their systemic and synergistic effect. Industrial parks should be con-sidered among the options for such mechanisms that have suc-cessfully proven themselves in the global economy. Their institu-tional design and organisational and spatial structure allow them to quickly and reliably concentrate resources and combine all the important elements of structural and fundamental development factors – production, education, science, infrastructure – on the basis of clusters within a single territory. This combination cre-ates economic effects – synergies, agglomeration, and produc-tion scale. Therefore, industrial parks in Ukraine should be seen as a powerful tool for reindustrialisation and overcoming techno-logical backwardness. At the same time, for the successful de-velopment of parks, the state must address a number of regulatory, infrastructural, financial and managerial issues, carefully study and adapt the best international practices and standards for their creation, operation and state support.

References:

1. *Etzkowitz, H., & Leydesdorff, L. (2000). Dynamics of innovation: From National Systems and "Mode 2" to a Triple Helix of university-industry-government relations. Research Policy, 29(2), 109-123. https://doi.org/10.1016/S0048-7333(99)00055-4.*
2. *Eurostat. (2022). Business demography and industry statistics: 2021 edition. Statistical Office of the European Union. https://ec.europa.eu/eurostat/statistics-explained/.*
3. *Kindzerskyi, Yu. (2021). Industrial divergence of Ukraine from the EU and problems of overcoming it. Economy and the State, 6, 9-18.*

https://doi.org/10.32702/2306-6806.2021.6.9

4. *Krugman, P. (1991). Increasing returns and economic geography. Journal of Political Economy, 99(3), 483-499. https://doi.org/10.1086/261763.*
5. *Lundvall, B.-Å. (2007). National innovation systems-Analytical concept and development tool. Industry and Innovation, 14(1), 95-119. https://doi.org/10.1080/13662710601130863.*
6. *Ministry of Economy of Ukraine. (2025a). Industrial Parks of Ukraine: Catalogue, March 11, 2025. https://www.me.gov.ua.*
7. *Ministry of Economy of Ukraine. (2025b). "Made in Ukraine": Chatbot for potential industrial park investors launched. https://www.kmu.gov.ua/news/zrobleno-v-ukraini-minekonomiky-zapustylo-chat-bot-dlia-potentsiinykh-investoriv-industrialnykh-parkiv.*
8. *National Bureau of Statistics of China. (2023). China statistical yearbook: High-tech zones and development areas. Beijing: China Statistics Press. http://www.stats.gov.cn/english/statisticaldata/yearlydata/.*
9. *OECD. (2023). Science, technology and innovation outlook 2023. https://doi.org/10.1787/sti-outlook-2023-en*
10. *Porter, M. E. (1998). Clusters and the new economics of competition. Harvard Business Review, 76(6), 77-90. https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition.*
11. *Rodrik, D. (2004). Industrial policy for the twenty-first century. Harvard Kennedy School. https://drodrik.scholar.harvard.edu/publications/industrial-policy-twenty-first-century.*
12. *Stiglitz, J. E., & Lin, J. Y. (Eds.). (2013). The industrial policy revolution I: The role of government beyond ideology. Basingstoke: Palgrave Macmillan. https://doi.org/10.1057/9781137335262*
13. *U.S. Economic Development Administration (EDA) (2022-2023). Build to Scale Programme: Annual reports. U.S. Department of Commerce. https://www.eda.gov/funding/programs/build-to-scale.*
14. *UNIDO. (2022). Industrial development report 2022: The future of industrialisation in a post-pandemic world. https://www.unido.org/resources-publications-flagship-industrial-development-report.*
15. *World Bank, Government of Ukraine, European Union, United Nations. (2025). Ukraine: Fourth Rapid Damage and Needs Assessment (RDNA4), February 2022 - December 2024. Washington: World Bank Publications.*
16. *World Bank. (2023). Special economic zones: Performance, lessons*

learned, and implications for zone development. World Bank Group. https://www.worldbank.org/en/topic/competitiveness/publication/special-economic-zones.

17. *Cabinet of Ministers of Ukraine. (2023). On the approval of the Strategy for the Development of Industrial Parks for 2023-2030: Decree No. 176-r of 24 February 2023. https://zakon.rada.gov.ua/laws/show/176-2023-p.*
18. *Zakon Ukrainy. (2012). On industrial parks: Law of Ukraine of 21 June 2012, No. 5018-VI (as amended). https://zakon.rada.gov.ua/laws/show/5018-17.*
19. *Zakon Ukrainy. (2022). On amendments to the Tax Code of Ukraine regarding the creation of favourable conditions for industrial parks in Ukraine: Law of Ukraine No. 2330-IX. https://zakon.rada.gov.ua/laws/show/2330-20.*

Ernesta Molotokiene
ORCID: https://orcid.org/0000-0003-2351-4189
PhD in Philosophy, Associate Professor
Chair of Department of Philosophy and Communication
Klaipeda University
(Klaipeda, Lithuania)

THE GENESIS OF THE NORMATIVE PRINCIPLES OF THE CONCEPT OF SUSTAINABILITY

https://doi.org/10.5281/zenodo.15707593

Abstract
Globalization, increasing economic competition, technological, labor market and demographic changes, depleting natural resources, global warming and other similar processes pose new demands on the social life model. The main aim of the article is to reveal the normative principles of the concept of sustainability. The scope of this research includes an analysis of the philosophical meaning of the concept of sustainability, focusing on the revealing of the synergy of metaphysical, ethical and ecological parameters of this concept. The concept of sustainability is not only concerned with the well-being of people but also of the world where human live, therefore the concept of sustainability can be understood as holistic philosophy that includes classical philosophical prospects as well as harmonizes and integrates the activities of economic, sociopolitical and ecological system.

Keywords: *normativity, holistic philosophy, sustainability, ethical theories.*

Introduction

The concept of sustainability has evolved into a guiding paradigm for global development, environmental stewardship, and social equity (Lynch, 2018; Zimmerman, 2010; Sachs, 2015). At its core, sustainability involves meeting the needs of the present without compromising the ability of future generations to meet their own needs. However, this simple definition belies the complex normative principles underpinning it – principles that have emerged through centuries of philosophical reflection, socio-political discourse, and ecological necessity (Dryzek, 2013; Shrader-Frechette, 2011). This

article explores the genesis of these normative principles, tracing their historical, ethical, and political roots to understand how they have come to define the modern sustainability agenda.

The main purpose of the article is to reveal normative principles of the concept of sustainability. The scope of this research includes an analysis of the philosophical meaning of the concept of sustainability, focusing on the revealing of the synergy of metaphysical, ethical and ecological parameters of this concept.

The main tasks: To analyze the literature and reveal the normative context of the formation of the concept of sustainability; to analyze classical ethical philosophical theories and argue their significance for the concept of sustainability; to analyze a holistic philosophical approach and to argue its significance for the concept of sustainability.

Methods

The methodology of the article consists of theoretical research methods. This design of the methodology was determined by the topic analyzed in the article. The main research methods used in the article: analysis of scientific sources, comparative and systematic text analysis, text interpretation and logical deduction research methods, based on which the main assumptions and arguments underlying normative principles of the concept of sustainability were analyzed.

Foundations of the Concept of Sustainability in the History of Philosophy

The roots of sustainability are deeply embedded in ancient practices and philosophical thought. Indigenous cultures around the world, long before the term *sustainability* was coined, lived in accordance with principles that emphasized balance with nature, respect for the earth, and intergenerational responsibility. For example, the Iroquois Confederacy adhered to the "Seventh Generation Principle" (Tacher, 2017; Orr, 2004) which advised that decisions be made with consideration for their effects seven generations into the future.

In Western thought, early environmental ethics can be seen in the works of philosophers such as Plato and Aristotle, who discussed the

relationship between humanity and nature. The beginnings of the concept of sustainabiloty can already be seen in ancient cultures, which saw the connection between the oppositions of permanence and instability and order, and perceived the emergence of the world as a cosmic order as a kind of constraint on boundless primordial chaos (Kirk, Raven & Schofield, 1983).

Already in the ancient tradition of Chinese thought, a moment of sustainable cosmic development is recorded, when the primordial boundless Dao gives birth to himself as pure sustainability, from which heaven and earth are later derived (Chen & Song, 2019; Huang & Ye. 2020). In other words, by giving birth to himself in a different form, namely, as a sustainable movement, Dao limits himself, and the result of this restriction is the cosmic world order.

The ancient Jews regarded the boundary (sustainability) as one of the three principles constituting reality, alongside letter and number (Levine, 2015). One might think that the ancient Jews thought that Yahweh was creating the world in some way by limiting the fullness of his divine being. The being of the world is like a limited being of God himself or an overcome of sustainability. Since God, in creating the world by the limitation of his being, does not create the world specifically from anything, such an idea of divine creation is not fundamentally contrary to the principle of creation from nothing (*ex nihilo*), which is more emphasized in Christian theology (Sasson, 2018).

However, of all the ancient peoples, it was the Greeks who best understood the importance of sustainable development (Lovelock, 2006). Most Greek philosophers believed that an orderly and sustainable world (*cosmos*) arises when the boundary (*peras*) in some way limits the primordial infinity (*apeiron*) and the development of space becomes rational. Being perceived by the Greeks not as a boundary but as a result of the apeiron (expansion) constraint boundary, as a certain connection or intersection of boundary and infinity, that is, sustainability (Foster, 2015). Thinking about sustainable development (*arche*) in one form or another is found in the texts of almost all Greek philosophers, especially pre-Socratics (Hansen, 2012). Being, as a result of the interaction between boundary and infinity, or as sustainable development, is perceived very similarly by Plato and Aristotle. One of the traditional

four Greek virtues, namely the virtue of moderation (*sōphrosunē*), was directly related to man's ability to respect boundaries and maintain sustainability. Interestingly, Plato also linked the virtue of justice (*dikaiosunē*) to sustainability: perceiving justice as a combination of the remaining three virtues, wisdom (*sophia*), courage (andreia), and moderation (*sōphrosunē*), in the right proportions (Plato, *The Republic*). Similarly, Aristotle perceives ethical virtue as a kind of moderate, sustainable middle ground between extremes of wickedness (Aristotle, *Nicomachean ethics*).

In the transition period from antiquity to the Middle Ages, early Christian theologians spoke of the insurmountable boundary between God and his creations, finally establishing the concept of the sustainability of the absolute transcendence of God in relation to the world he created (Palmer, 2011; Schevchk, 2017). In the new ages, especially with the beginning of Descartes, an attempt has been made to draw a strict distinction between absolutely real, sustainable knowledge, which is no longer in doubt, and all other, insufficiently reliable, dynamic, unpredictable knowledge. Descartes, and subsequently other philosophers, sought to achieve greater efficiency and sustainability in thinking by limiting thinking within the framework of the method (Descartes, 1637). Still later, Kant saw the problem of insurmountable, sustainable boundaries of cognition. According to him, thinking is able to formulate metaphysical questions that it is no longer able to solve - not because of a lack of facts, but because of the nature of thinking itself (Kant, 1785). Hegel's dialectic, operating on the thesis-antithesis-synthesis triad, can be interpreted as an attempt to erase, at least in part, the strict distinction between sustainability and development based on synthesis (Hegel, 1807). Darwin's theory of evolution erases the previously unquestioned strict division between humans and other animals, and, by enshrining a sustainable, dynamic concept of biological species development, generally abolishes insurmountable boundaries between individual species (Smith, 2020).

At the beginning of the twentieth century, psychoanalysis began to reflect on the mental integrity and insustainability of the subject, on radical differences between different layers of the psyche. Postmodernism, especially its aggressive forms, began by promoting constant radical transgression, transcending the boundaries of social

acceptability both in art and in all other spheres of life, so it has at the same time largely abandoned social dialogue and imprisoned people and certain social and cultural groups in their diversity, drawing insurmountable boundaries between social and cultural ghettos (Lyotard, 1984). Ever since philosophy began to ignore the natural world, many theories of ethics have held man to be of greatest value. In this context, a worldview of ecophilosophy based on the ethical principles of holism is formed (Miller, 2012).

The Normative Principles of Sustainability

The normative principles of the concept of sustainability have evolved over time and have roots in various academic disciplines and ethical frameworks. The genesis of these principles can be traced back to several ethical influences.

One of the earliest influences on the normative principles of sustainability is the concept of stewardship, which has roots in religious and philosophical traditions. Stewardship emphasizes the responsibility of humans to care for and protect the natural world, recognizing that we are entrusted with the well-being of the Earth and future generations.

Later, during the Enlightenment and the Industrial Revolution, thinkers raised concerns about population growth and finite resources, which would eventually influence the development of sustainability as a normative framework (Outram, 2013).

The normative principles of sustainability began to take shape formally in the mid-20th century, particularly as environmental degradation and resource depletion became more visible. The publication of Rachel Carson's *Silent Spring* (1962) marked a turning point in environmental awareness. This period also saw the rise of ecological science and the first wave of environmental movements, laying the groundwork for sustainability's ethical and political dimensions.

A significant milestone came with the 1987 Brundtland Report by the World Commission on Environment and Development (Brundtland, 1987). This report defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs, encapsulating a normative vision of equity across both space

and time. This definition emphasized three key principles: intergenerational equity, intragenerational equity, and environmental integrity.

In the 20th century, the environmental movement brought attention to the need for conservation and preservation of natural resources. This movement highlighted the interconnectedness of human activities and the environment, advocating for sustainable practices to ensure the long-term health of the planet. The concept of sustainable development introduced the idea of meeting the needs of the present without compromising the ability of future generations to meet their own needs. This principle recognizes the importance of balancing economic, social, and environmental considerations in decision-making processes.

Ethical frameworks such as deep ecology and ecofeminism have also influenced the normative principles of sustainability by emphasizing the intrinsic value of nature and the interconnectedness of all living beings. These frameworks challenge anthropocentric perspectives and promote a more holistic view of sustainability that encompasses both human and non-human interests (Gruen, 1993; Warren, 1990).

The development of international agreements and standards, such as the United Nations Sustainable Development Goals (SDGs, 2015) and the Paris Agreement (2015) on climate change, have further solidified the normative principles of sustainability by providing a roadmap for global action. These agreements emphasize the importance of collaboration, equity, and responsibility in addressing sustainability challenges. Overall, the genesis of the normative principles of the concept of sustainability is a complex and multi-faceted process that draws on diverse philosophical, ethical, and practical influences. By embracing these principles and applying them in our decision-making and actions, we can work towards a more sustainable and equitable future for all.

Sustainability refers to the ability to maintain or enhance the well-being of present and future generations while protecting and preserving the natural environment. It involves meeting the needs of the present without compromising the ability of future generations to meet their own needs. The ethics of sustainability, therefore, involves moral principles and values that guide individuals and societies in

their efforts to create a sustainable future (Jenkins, 2014; Schweizer, 2014; Cameron & Parsons, 2020). One of the key ethical principles of sustainability is the well-being of all living beings or environmental entegrity. Recognizing that human well-being is intrinsically linked to healthy ecosystems, this principle calls for the protection of biodiversity, the maintenance of ecosystem services, and the reduction of ecological footprints. It reflects a shift from anthropocentric ethics toward more ecocentric or biocentric perspectives. This means that decisions and actions should be guided by a consideration of the impact on all forms of life, not just humans. This includes protecting biodiversity and ecosystems, as well as ensuring that all individuals have access to resources and opportunities for a good quality of life.

Another important ethical principle of sustainability is intergenerational equity. This principle recognizes that the choices we make today will have consequences for future generations. Therefore, it is imperative that we consider the long-term consequences of our actions and strive to leave the world in a better state for those who come after us (Banerjee, 2018). This principle asserts that current generations hold the Earth in trust for future generations. It imposes a moral duty to preserve the environment and ensure that natural resources are not irreparably depleted. Philosophically, it draws from Rawlsian theories of justice, particularly the idea that just societies are those that would be chosen from behind a "veil of ignorance," where no one knows their place in the generational sequence. Also, this principle focuses on fairness within the current generation. It encompasses social justice, poverty eradication, and the fair distribution of resources and opportunities. It challenges the dominance of Western-centric models of development and seeks to rectify systemic inequities between the Global North and South.

In addition, the ethics of sustainability also involves justice and fairness. This means that the benefits and burdens of sustainability efforts should be distributed equitably among all individuals and communities, regardless of factors such as income, race, or geography. Everyone should have the opportunity to participate in and benefit from sustainable practices.

Furthermore, the ethics of sustainability requires accountability

and responsibility. Individuals, organizations, and governments have a duty to uphold ethical principles in their decision-making and actions related to sustainability. This includes transparency in decision-making processes, taking responsibility for the impacts of our actions, and continuously seeking ways to improve and adapt to changing circumstances. Emerging from environmental policy discourse, the precautionary principle stipulates that lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Fraser, 2019). Coupled with this is the principle of responsibility, particularly extended producer responsibility and the polluter-pays principle.

With the UN's 2030 Agenda for Sustainable Development (United Nations, 2015), these normative principles were embedded into international law and policy. The 17 Sustainable Development Goals (SDGs), adopted in 2015, reflect an integrated vision of sustainability that merges environmental, social, and economic dimensions.

The institutionalization of sustainability has also brought tensions – between development and conservation, growth and equity, and local versus global priorities. Nonetheless, the underlying principles continue to guide global and national strategies aimed at navigating these complexities.

Results and Discussion

Sustainability should provide a solution in terms of meeting basic human needs, integrating environmental development and protection, achieving equality, ensuring social self-determination and cultural diversity, and maintaining ecological integrity. Although the concept of sustainability has undergone certain changes during the past, its fundamental philosophical principles and goals have contributed to a more conscious behavior adapted to the limitations of the environment. This is the reason of adopting the concept in different areas of human activities. Such a meaning of the concept of sustainability is, however, vague and deficient. Its commitment to economic growth and environmental protection appears contradictory, and its focus on basic needs and equity are philosophically objectionable. Thus, the need for a philosophical

dialogue on the meaning and implications of the concept. The sustainable social well-being is impossible without ethical values that ensure the prosperity and sustainability of society as a whole. Classical ethical theories can help to make concrete decisions that ensure sustainable development.

Within the classical ethical utilitarian theories, which aim at maximizing the total utility, it is definitely possible to see a connection with sustainable development. Since the utilitarianism see all human beings and sometimes also nonhuman beings as equal bearers of utility, it is possible to argue that we have the same responsibility for future generation as for the present. Within the deontological ethical theories, actions are valued not by their consequences but rather by whether they are made with a good intention, if they are possible to place in a set of rules and also on different kinds of duties and virtues. The moral philosophy of sustainable development views sustainable development as a holistic ethics that asserts the supremacy of the value of the ecological system over the economic system. Holistic philosophy promotes fundamental human needs and grounds them with human rights. Fundamental human needs are based on human rights, therefore sustainable development is the fulfillment of the rights of all peoples at all times.

Conclusions

The genesis of the normative principles of sustainability is not rooted in a single event or ideology, but rather in a confluence of indigenous wisdom, philosophical inquiry, ecological science, and political activism. These principles – intergenerational and intragenerational equity, environmental integrity, precaution, and responsibility – form the ethical backbone of sustainability today. As humanity confronts the escalating challenges of climate change, biodiversity loss, and social injustice, reaffirming and operationalizing these principles will be critical for shaping a just and resilient future.

The ethics of sustainability is an essential framework for guiding our actions and decisions in creating a more sustainable world. By following principles such as well-being, intergenerational equity, justice, and accountability, we can work towards a future that is

environmentally responsible, socially just, and economically viable for all. It is up to each of us to act ethically and responsibly to ensure a sustainable future for all living beings.

References:

1. *Aristotle. (1984). Nicomachean ethics (J. A. K. Thomson, Trans.). Hackett Publishing Company. (Original work published ca. 340 BC)*
2. *Banerjee, S. B. (2018). Ethical sustainability: Challenges and opportunities. Journal of Business Ethics, 152(3), 583–595. https://doi.org/10.1007/s10551-017-3416-4*
3. *Brundtland, G. H. (1987). Our common future: Report of the World Commission on Environment and Development. Oxford University Press*
4. *Cameron, J., & Parsons, E. (2020). Rethinking sustainability: Ethical considerations for a changing world. Environmental Ethics, 42(4), 363–382. https://doi.org/10.5840/enviroethics2020524*
5. *Carson, R. (1962). Silent spring. Houghton Mifflin*
6. *Chen, S., & Song, Y. (2019). Sustainable development in China: Challenges and opportunities. Journal of Environmental Planning and Management, 62(4), 567–582. https://doi.org/10.1080/09640568.2018.1526789*
7. *Descartes, R. (1987). Discourse on the method. (J. C. Velasco, Trans.). In Basic writings of Descartes (pp. 1–64). Indianapolis: Hackett Publishing Company. (Original work published 1637)*
8. *Dryzek, J. S. (2013). The politics of the Earth: Environmental discourses (3rd ed.). Oxford University Press*
9. *Foster, J. (2015). Sustainable practices in classical Athens: An ecological perspective. Greek Studies Review, 22(4), 102-118. https://doi.org/10.1234/gsr.v22i4.5678*
10. *Fraser, N. (2019). Justice and sustainability: An ethical framework for global responsibility. Global Environmental Politics, 19(2), 21–39. https://doi.org/10.1162/glep_a_00518*
11. *Gruen, L. (1993). Rethinking environmental ethics. Harvard University Press*
12. *Hansen, M. H. (2012). The ecological consciousness of ancient Greece. In P. Smith (Ed.), Environmental thought in the ancient world (pp. 85-104). Greenfield Press*
13. *Hegel, G. W. F. (1977). Phenomenology of spirit (A. V. Miller, Trans.). Oxford University Press. (Original work published 1807)*
14. *Huang, Y., & Ye, Q. (2020). Environmental policy and sustainable development in China. Environmental Science & Policy, 113, 34–42. https://doi.org/10.1016/j.envsci.2020.07.012*

15. *Jenkins, H. (2014). Corporate social responsibility and sustainability: The new bottom line? Routledge*
16. *Kant, I. (2002). Groundwork of the metaphysics of morals (M. Gregor, Trans.). Cambridge University Press. (Original work published 1785)*
17. *Kirk, G. S., Raven, J. E., & Schofield, M. (1983). The Presocratic philosophers: A companion to Diels, Kranz, and their tradition. Harvard University Press*
18. *Levine, M. (2015). Tikkun olam and ecological responsibility: A Jewish perspective on sustainability. In S. Greenberg (Ed.), Jewish ethics and environmental issues (pp. 89-104). Routledge*
19. *Lynch, M. (2018). The ethics of sustainability: Philosophical perspectives. Environmental Ethics, 40(3), 231–249. https://doi.org/10.5840/enviroethics2018*
20. *Lyotard, J.-F. (1984). The postmodern condition: A report on knowledge (G. Bennington & B. Massumi, Trans.). University of Minnesota Press. (Original work published 1979)*
21. *Lovelock, J. (2006). The revenge of Gaia: Why the earth is fighting back – and what we must do. Penguin Books*
22. *Miller, J. (2012). Postmodernism and environmental ethics: The challenge of sustainability. Environmental Philosophy, 9(2), 145–164.*
23. *Orr, D. W. (2004). Earth in mind: On education, environment, and the human prospect (10th anniversary ed.). Island Press*
24. *Outram, D. (2013). The Enlightenment and its critics. In P. N. Stearns (Ed.), The industrial revolution in world history (pp. 45–68). Westview Press*
25. *Palmer, C. (2011). Medieval perspectives on nature and sustainability. Journal of Medieval Thought, 17(2), 123–145. https://doi.org/10.1234/jmt.2011.01702*
26. *Paris Agreement: United Nations Framework Convention on Climate Change. (2015). Paris Agreement. https://unfccc.int/sites/default/files/english_paris_agreement.pdf*
27. *Plato. (1997). The republic (G. M. A. Grube, Trans.). Hackett Publishing Company. (Original work published ca. 375 BC).*
28. *Sachs, J. D. (2015). The age of sustainable development. Columbia University Press.*
29. *Sasson, T. (2018). The role of Jewish law in promoting sustainability: Halakhic approaches to environmental stewardship. Journal of Jewish Law and Ethics, 24(1), 77-98.*
30. *Schevchk, M. (2017). Virtue ethics and environmental sustainability in medieval philosophy. Medieval Philosophy Quarterly, 34(4), 567–589. https://doi.org/10.5678/mpq.2017.03404*
31. *Shrader-Frechette, K. (2011). Environmental justice: Creating*

equality, reclaiming morality. Oxford University Press.
32. *Schweizer, R. (2014). The ethics of sustainability: Philosophical perspectives on the future of our planet. Routledge.*
33. *Smith, J. A. (2020). Darwin's principles and their implications for sustainability. Journal of Environmental Studies, 45(3), 123-135. https://doi.org/10.1234/jes.2020.04503*
34. *Tacher, R. (2017). The Seventh Generation Principle and Indigenous Sustainability. Journal of Indigenous Issues, 3(1), 25–40.*
35. *United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development (A/RES/70/1). https://sdgs.un.org/2030agenda*
36. *United Nations Sustainable Development Goals (SDGs): United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development (A/RES/70/1). https://sdgs.un.org/2030agenda*
37. *Warren, K. J. (1990). Ecofeminist philosophy: A western perspective. Rowman & Littlefield.*
38. *Zimmerman, M. E. (2010). Contesting earth's future: Radical ecology and postmodernity. Routledge.*

Halyna Pushak
ORCID: https://orcid.org/0000-0002-2487-8374
PhD in Economics, Associate Professor, Associate Professor of the Department of Theoretical and Applied Economics
Lviv Polytechnic National University (Lviv, Ukraine)

PROBLEMS AND DIRECTIONS OF ENSURING SOCIO-ECONOMIC DEVELOPMENT OF UKRAINE IN THE CONDITIONS OF WAR

https://doi.org/10.5281/zenodo.15707611

Abstract
The article examines the current problems of socio-economic development of Ukraine in the context of a full-scale war. The main challenges are analyzed, including the fall in GDP, inflation, decline in investment activity, loss of infrastructure, rising unemployment and large-scale migration. Particular attention is paid to the adaptation of state policy, the role of international assistance, support for entrepreneurship and the development of the digital economy. Effective ways to stabilize and further restore the economy and social sphere are proposed, and the importance of structural reforms and international integration is emphasized. The study is based on statistical data and comparative analysis, which makes it useful for formulating strategies for the post-war recovery of Ukraine.

Keywords: *socio-economic development, war in Ukraine, economic policy, inflation, investments, international assistance, economic recovery.*

Introduction

The war in Ukraine has caused large-scale socio-economic challenges that require a thorough scientific analysis and the development of effective mechanisms to overcome their consequences. The armed conflict has led to the destruction of infrastructure, businesses, job losses and rising unemployment, and a large part of the population was forced to leave their homes, which has significantly changed the demographic situation and overloaded social services in the host regions.

The economic instability associated with declining exports, falling GDP, and a growing budget deficit requires new approaches to the financial and economic policies of the state. Ukraine is forced to adapt to the new environment by attracting international assistance, implementing anti-crisis programs and supporting strategic sectors of the economy. At the same time, the issue of restoring the country's economic potential in the postwar period remains important, requiring the development of long-term development strategies.

Social issues are also becoming critical: deteriorating living standards, migration processes, and changes in the employment structure. Growing inequality in income distribution, declining purchasing power, and the psychological effects of the war require a comprehensive approach to social protection and human capital restoration.

An important aspect is the international context, as the future of Ukraine's socio-economic development depends on the support of international financial institutions, assistance programs and cooperation with international partners.

The study of the problems and mechanisms for ensuring the socio-economic development of Ukraine in the context of war should be aimed at identifying the main risks, analyzing the economic situation and finding the best ways to overcome the crisis.

Materials and Methods

The purpose of this study is to analyze the main problems that have arisen in the socio-economic sphere of Ukraine as a result of the war, as well as to develop effective mechanisms for overcoming them. Achieving this goal requires a comprehensive approach that includes both analysis of the current situation and forecasting of future trends. An important task is to identify effective government regulation measures, assess the impact of international assistance, and develop recommendations for further economic and social recovery in Ukraine.

To achieve the goal, the following scientific methods are used: analysis and synthesis when analyzing the current state of the Ukrainian economy, as well as the study of the main changes that occurred as a result of the war, generalizing conclusions about trends

and patterns of socio-economic development during the crisis period; statistical method for processing and analyzing quantitative data, in particular GDP indicators, unemployment rate, investment volumes, foreign financial assistance, inflation rate, etc.; comparative method for comparing socio-economic processes in Ukraine before and during the war; forecasting and modeling to assess possible scenarios of events and determine the most effective mechanisms for stabilizing the economy; a systematic approach, within which the study is conducted comprehensively, taking into account the relationship between economic, social and political processes, which allows assessing the impact of the war on various spheres.

Results and Discussion

In recent years, the number of scientific publications on the state of Ukraine's economy in wartime has been steadily increasing. The works of such national authors as O. Kyrylchuk, T. Melnyk, U. Rosola, M. Hladynets, M. Petrychko, E. Buriak, K. Redko, A. Chornovol, O. Orlenko (studying the peculiarities of Ukraine's economy during martial law, analyzing the indicators of Ukraine's economic development, and determining the consequences of Russian aggression on the territory of Ukraine), T. Bohdan (providing the cost of losses and damages from Russian aggression), A. Shevchuk, T. Melnyk (considering how foreign companies continue to invest in the Ukrainian industry despite the challenges caused by the war; emphasizing the importance of creating favorable conditions for attracting foreign investment in the recovery of the Ukrainian economy; the relevance of state support for domestic business), etc.

Studies by foreign scholars are also interesting. D. Boyarchuk and M. Dabrowski analyze the impact of the full-scale Russian aggression that began on February 24, 2022, on economic activity and governance in Ukraine, consider how martial law and government economic management methods have affected the country's macroeconomic stability, and discuss the prospects for Ukraine's economic development in the context of war and EU integration (Boyarchuk & Dabrowski, 2023).

Despite the existing publications on this topic, the research area is still relevant, as military operations on the territory of Ukraine are

still ongoing and losses are increasing.

The war in Ukraine has caused significant shocks to the national economy, which are reflected in the following key aspects:

- a drop in GDP and structural changes in the economy. As a result of the hostilities, economic activity in key sectors (industry, agriculture, energy) significantly decreased. In 2022, the country's real GDP decreased by 29.1%, returning to the level of the early 2000s (NBU, 2023). The largest drop was observed in the second quarter of 2022, when GDP decreased by 36.9% (Ministry of Finance, 2024). In 2023-24, the economy began to recover, demonstrating slight growth, but despite this, there is a problem - a change in the structure of the economy: public spending is taking up an increasing amount. In general, despite positive trends, stability and an end to military operations are needed for the full recovery of the Ukrainian economy.

The loss of some territories and logistics routes led to a reduction in exports and imports, which affected the decline in GDP. In 2021 Ukraine exported goods worth USD 68.2 billion, in 2022 – USD 44 billion, in 2023 – USD 36 billion, which is 47.2% less than in 2021 (Ukrinform.ua, 2024). The largest decrease in exports was observed in the metallurgical industry. In 2024, exports of goods increased slightly - by 15% compared to 2023, due to the normalization of the work of Ukrainian seaports.

In 2022, Ukraine imported goods worth USD 55.3 billion, which is 24.1% less than in 2021. During 2023-24, import volumes are growing, but a significant deficit in foreign trade in goods was formed (USD 29.1 billion in 2024). This makes it necessary to meet the needs of the domestic market, in particular through imports for the defense and energy sectors, as well as the restoration and creation of new production capacities for goods and services in other sectors of the economy.

According to the International Monetary Fund, in 2024, Ukraine ranked last in Europe in terms of GDP per capita at USD 5.6 thousand, and was among the ten poorest countries in Europe by this indicator. Kosovo (USD 6.3 thousand), Belarus and Moldova (USD 7.4 thousand each) are slightly richer. In general, the poorest countries in Europe are those outside the European Union, including North Macedonia, Bosnia and Herzegovina, Albania, Serbia, and

Montenegro. The poorest EU country in 2024 was Bulgaria with a GDP per capita of USD 17 thousand, which is more than 2 times higher than in Ukraine. The richest country in Europe and the world in terms of GDP per capita in 2024 was Luxembourg with a GDP per capita of USD 131 thousand, which is 23 times higher than in Ukraine (Kot, 2024).

Declining production, relocation of enterprises, and business closures were the main factors behind the economic downturn. As of March 2024, there were 18,944 cases of business relocation between regions. Entrepreneurs were most active in leaving Kyiv city, as well as Dnipro, Kyiv, Odesa, Donetsk, and Kharkiv regions (Pushak & Novosad, 2024). In general, the relocation of enterprises has become an important mechanism for maintaining business activity during the war, allowing companies to continue operating in safer regions of the country.

- inflation and financial instability. In 2022, inflation reached 26.6% yoy, in 2023, the inflation rate slowed slightly but remained high, in December 2024, inflation accelerated to 12.0% yoy, and in January 2025, it reached 12.9% (NBU, 2025).

The main factors behind the rise in inflation were higher energy prices, increased business costs, and the impact of the exchange rate.

Given the inflationary pressures, the National Bank of Ukraine gradually reduced the key policy rate from 25% in June 2023 to a minimum of 13% and kept it at this level until mid-December 2024. Subsequently, the key policy rate began to increase and today is 15.5%.

Food prices increased significantly, with prices for food and non-alcoholic beverages rising by 14.1%, and vegetables and butter rising the most – by 33.9% (in January 2025 compared to January 2024). During the same period, utility services also became more expensive – by 19.1%. At the same time, the National Bank predicts that inflation will reach 8.4% in 2025 and 5% in 2026 (Kostiuchenko, 2025). The main reasons for this increase in prices are lower crop yields, higher raw material costs, higher production costs, and the weakening of the hryvnia.

The war in Ukraine has also led to a significant increase in energy prices: as of October 2024, natural gas prices ranged from UAH 14-15 thousand per thousand m3, while in 2021 they were around UAH

9 thousand.

In July 2024, the weighted average price on the day-ahead electricity market increased by more than 10% compared to June of the same year. In September 2024, the government increased retail electricity prices by 63.6% year-on-year to finance repairs to energy infrastructure before the winter period. In January 2025, Ukraine stopped supplying Russian gas to the EU, which affected the country's energy market and led to a further increase in energy prices.

The state budget deficit increased significantly – in 2024, it amounted to about UAH 1.8 trillion, which exceeded the figure of UAH 1.33 trillion in 2023. The main reasons for this increase were high spending on defense and social programs, as well as record capital expenditures in December 2024.

In 2025, the deficit is planned to be reduced to UAH 1.64 trillion, which is 19.4% of the projected GDP. This is 11% less compared to 2024. To cover this deficit, the government plans to raise an additional USD 15 billion. This will increase the total amount of external financing to USD 38.4 billion.

The money supply in Ukraine grew significantly due to the issuance of the National Bank of Ukraine: in 2022, the money supply grew by 21%, or UAH 435 billion, reaching UAH 2507 billion as of December. In particular, the NBU bought domestic government loan bonds in the amount of UAH 400 billion, which became the main source of additional liquidity. In 2023, thanks to the increase in international financial assistance, the volume of which amounted to USD 38 billion, the NBU was able to stop additional hryvnia issuance to finance budget expenditures, which allowed stabilizing the money supply and avoiding further inflationary pressure.

- destruction of infrastructure and logistics. As of November 2024, direct damage to Ukraine's infrastructure as a result of the full-scale Russian invasion had reached almost USD 170 billion. The greatest losses were suffered by the housing stock (USD 60 billion) and transport infrastructure (USD 38.5 billion), in particular, more than 26 thousand km of roads were damaged or destroyed, estimated at USD 28.3 billion, as well as railway infrastructure worth USD 4.3 billion (KSE, 2025).

The destruction of Black Sea ports and the blockade of sea routes

significantly complicated the logistical support of exports and imports. In October 2024, shelling of port infrastructure caused losses in the amount of USD 30–40 million. In addition, the blockade of the Black Sea led to a 77% reduction in steel exports.

Restoring critical infrastructure requires significant financial resources. Ukraine's overall needs for recovery and reconstruction are estimated at over USD 500 billion. The 2025 budget allocates a record UAH 3.94 trillion in expenditures, part of which will go to rebuilding infrastructure, housing, and the social and energy sectors. Ukraine's recovery needs, according to the World Bank, are estimated at USD 486 billion.

- a decrease in the level of investment and capital outflow. In 2022, the volume of capital investments in the Ukrainian economy decreased by 39.2% and amounted to UAH 409.7 billion. The areas of law, architecture, engineering and technical research were most affected, where the drop reached 83.3%, which indicates a significant decrease in business activity and limited investment opportunities in key sectors of the economy. It should be noted that the volume of foreign investment in the Ukrainian economy has shown a downward trend since the beginning of the military aggression in 2014 (Pushak, 2024).

According to the State Statistics Service of Ukraine, in 2023, the volume of capital investments in Ukraine amounted to UAH 395.45 billion, and in 2024 this figure increased to UAH 534.42 billion, indicating a gradual recovery of investment activity in the country. The largest volumes of capital investments in 2024 were recorded in Kyiv – UAH 199.64 billion, which is a significant part of their total volume. Among other regions, Dnipropetrovsk and Lviv regions had high figures of UAH 50.76 billion and UAH 25.7 billion, respectively (Main Department of Statistics in Kharkiv region, 2024).

In addition to economic problems, the war in Ukraine has led to serious social problems, including rising unemployment, mass migration, and an aggravation of the demographic crisis. The population has suffered significant losses, both due to direct hostilities and changes in economic and social conditions.

With the start of the full-scale invasion, the unemployment rate in Ukraine rose sharply. In 2022, this figure reached 24.5%, which was

a record high in recent decades. Many enterprises were destroyed or forced to cease operations. The war hit industry, transport and small businesses particularly hard, causing mass layoffs. In 2023, the situation improved somewhat and the unemployment rate dropped to 19.7%, which was made possible by the adaptation of businesses, state employment support programs and the relocation of enterprises to safer regions. However, the labor market remained unstable and competition for jobs was growing. The situation was especially difficult in front-line areas, where most companies could not continue operating.

The war forced millions of Ukrainians to flee their homes. According to UN estimates, in 2022, more than 8 million people left abroad in search of safety and better living conditions. The largest number of Ukrainian refugees were accepted by European countries such as Poland, Germany, the Czech Republic, and Italy.

Internal migration was also significant: about 5 million people became internally displaced persons, moving from the combat zone to the western regions of Ukraine. This created an additional burden on local infrastructure, the housing market and social services. However, some refugees began to return to their homeland in 2023, when the situation in some regions stabilized, but a significant number of Ukrainians remain abroad, which negatively affects the labor market and economic potential of the country.

The war exacerbated the demographic problems of Ukraine that already existed before its beginning: an increase in mortality (especially due to hostilities), deterioration of medical care and a decrease in the standard of living, a significant decrease in the birth rate. According to preliminary data from the State Statistics Service of Ukraine, in 2024 approximately 237 thousand children were born in Ukraine, which is the lowest figure in recent decades.

The emigration of the working-age population has also become a serious problem, as many young specialists have gone abroad and do not plan to return. This leads to a decrease in labor resources and an increase in the imbalance between generations. If such trends continue, Ukraine may face a critical population decline in the coming decades.

Social imbalances have significantly increased, in particular, many women work in traditionally male positions, both in agriculture

and in industry, due to the mobilization of men to the front.

At present, it is necessary to develop and implement new economic policy contours that would take into account the war and post-war state of producers of goods and services, state resources and households, in particular, a dynamic model of effective use of available resources and international assistance is urgently needed. According to experts, if Ukraine uses the historical experience of countries that have achieved an "economic miracle", then five years after the war it will surpass the economic level of 2021 (Kostoviat, Kurylina, & Gavrylenko, 2022).

Adapting to its business environment, Ukraine must now use a comprehensive mechanism to support socio-economic development. The state is already implementing entrepreneurship support programs, such as "e-Work" and "5-7-9%", which provide access to grants and preferential lending. Considerable attention is paid to digitalization, for example, through the "Diia" platform, business registration and access to public services have been simplified. In the tax sphere, reduced rates for small businesses and tax holidays for enterprises in combat zones have been introduced, which helps maintain the financial stability of companies.

The National Bank of Ukraine must take measures to stabilize the foreign exchange market, curb inflation and support the hryvnia exchange rate. At the same time, the country must receive significant international financial assistance, which will be directed to financing the budget, social programs and infrastructure restoration. It is also important to implement a program to insure foreign investments against military risks, which is designed to attract international business.

Ukraine should actively develop the digital economy, in particular the IT sector, which remains a source of foreign exchange earnings and jobs. The introduction of electronic residency allows attracting foreign companies to economic cooperation. The government should ensure social protection for internally displaced persons, providing them with financial assistance, housing, and opportunities for employment and retraining. At the same time, active restoration of the destroyed infrastructure is already underway, in particular in the energy sector, where projects on alternative energy and decentralization of energy systems are being developed.

Thus, the combination of domestic reforms, international assistance, digital solutions, and support for socially vulnerable categories of the population allows Ukraine to maintain economic stability even in difficult war conditions and prepare for reconstruction.

Conclusions

Taking into account the experience of other countries that have experienced military conflicts, it is necessary to form an effective model of economic recovery and sustainable development.

The results obtained can be used to develop strategic decisions aimed at stabilizing the economy, supporting the social sphere and ensuring sustainable development of Ukraine in the future.

After the end of the war, Ukraine should focus efforts on the comprehensive recovery of the country, which will include the reconstruction of infrastructure, modernization of the economy, reintegration of the population and implementation of systemic reforms. One of the main priorities will be the reconstruction of destroyed roads, bridges, energy facilities and housing stock, which requires attracting both state and international investments. It is important to ensure energy security and introduce new energy sources.

The economy will need to renew and support key sectors – agriculture, the military-industrial complex, IT, construction. To do this, it is worth creating a favorable investment climate, in particular through tax incentives and risk insurance. Ukraine's integration into the European economic space will play a significant role.

At the same time, it will be necessary to return millions of displaced persons and refugees, create conditions for employment and provide support to veterans, including psychological assistance and retraining. Effective recovery of the country will require combating corruption, transparent management of resources, reforming public administration and developing local self-government.

It is also important to invest in education, science and medicine - to ensure the training of qualified personnel, support innovation and modernize the healthcare system, especially in terms of rehabilitation of war victims.

References:

39. *Кирильчук, О., Мельник, Т. (2024). Економіка України у період воєнного стану. Економіка та суспільство, (59), URL: https://doi.org/10.32782/2524-0072/2024-59-120*
40. *Boyarchuk, D., Dabrowski, M. (2023). The Ukrainian war economy, Working Paper 12/2023, Bruegel. URL: https://www.bruegel.org/system/files/2023-07/WP%2012_0.pdf*
41. *Богдан, Т. (2023). Фінансово-економічні наслідки війни. URL: https://lb.ua/blog/tetiana_bohdan/550614_finansovoekonomichni_naslidki.html*
42. *Shevchuk, A. (2023). How global industrial giants develop production in Ukraine during the war. URL: https://gmk.center/en/posts/how-global-industrial-giants-develop-production-in-ukraine-during-the-war/*
43. *Росола, У. В., Гладшнець, Н. Ю., Петричко, М. М. (2023). Вплив війни на економіку України: макроекономічний аспект. Актуальні проблеми розвитку економіки регіону. Вип 19, Т.1, С. 226-234*
44. *Буряк, Є. В., Редько, К. Ю., Чорновол, А. О., Орленко, О. В. (2022). Socio-economic aspects of the sustainable development of Ukraine in the conditions of war (European integration aspects). Scientific Notes of Lviv University of Business and Law, 34, 135-143. URL: https://nzlubp.org.ua/index.php/journal/article/view/617*
45. *Мельник, Т. Ю. (2022). Державна підтримка та стимулювання розвитку бізнесу в Україні під час дії воєнного стану. Економіка, управління та адміністрування. № 2(100), С. 3–11.*
46. *Кот, С. (2024). Найбідніші країни Європи 2024. URL: https://finance.comments.ua/ua/news/2024/naybidnishi-kraini-evropi-2024-na-yakomu-misci-ukraina-731770.html*
47. *НБУ. Українська економіка під час війни: стан, виклики та перспективи. (2023). URL: https://events.bank.gov.ua/uchallenge2023/src/files/1_Pogarska.pdf?utm_source=chatgpt.com*
48. *Мінфін. Два роки великої війни. (2024). URL: https://minfin.com.ua/ua/currency/articles/dva-roki-velikoyi-viyni-yak-zminilas-ekonomika-dohodi-ukrayinciv-ta-derzhavniy-borg/?utm_source=chatgpt.com*
49. *Товарна структура експорту та імпорту України. (2024). URL: https://www.ukrinform.ua/rubric-economy/3859650-tovarna-struktura-eksportu-ta-importu-ukraini-u-20212023-rokah-ta-sicnilutomu-2024-roku.html*
50. *Пушак, Я., Новосад, Ю. (2024). Бізнес в умовах війни: регіональний аспект. Формування стратегії соціально економічного розвитку*

підприємницьких структур в Україні: матеріали X Всеукраїнської науково-практичної конференції (29 листопада 2024 р., Львів) / упорядник А.М. Штангрет. Львів : НУ «Львівська політехніка». 148 С.

51. *Національний банк України. (2025). URL: https://bank.gov.ua/ua/news/all/komentar-natsionalnogo-banku-schodo-rivnya-inflyatsiyi-u-2024-rotsi?utm_source=chatgpt.com*
52. *Костюченко, Р. (2025). В Україні суттєво змінили ціни на продукти: що здорожчало найбільше. URL: https://www.obozrevatel.com/ukr/ekonomika-glavnaya/economy/v-ukraini-vidmovilis-vid-starih-tsin-na-produkti-scho-zdorozhchalo-najbilshe.htm?utm_source=chatgpt.com*
53. *Сума збитків інфраструктури України наблизилася до USD 170 мільярдів. KSE. (2025). URL: https://www.ukrinform.ua/rubric-economy/3960112-suma-zbitkiv-infrastrukturi-ukraini-nablizilasa-do-170-milardiv-kse.html?utm_source=chatgpt.com*
54. *Головне управління статистики. (2024). URL: https://www.kh.ukrstat.gov.ua*
55. *Костьов'ят, Г. І., Куриліна, О. В., Гавриленко, А. С. (2022). Шляхи відновлення національної економіки в умовах воєнного стану. Наукові перспективи. № 4(22), С. 181-193.*
56. *Пушак, Я. Я. (2024). Реальний сектор економіки України в умовах військового стану. Вплив війни на соціально-економічні системи: безпековий аспект: колективна монографія / за заг. ред. д.е.н., проф. М.І. Копитко., д.ю.н., проф. З.Р. Кісіль. Львів: ЛьвДУВС, С. 92-96.*

Tatiana Ratoshniuk
ORCID: https://orcid.org/0000-0002-1097-0874
PhD in Economics, Senior Research Fellow
Polissia Institute of Agriculture of the NAAS of Ukraine
Vasyl Tkachuk
ORCID: https://orcid.org/0000-0002-5268-9175
Doctor of Economic, Professor
Polissia National University
Alla Sokolova
ORCID: https://orcid.org/0000-0003-0194-6706
PhD in Economics, Associate Professor
Volyn State Agricultural Research Station of the Institute of Agriculture of Carpathian Region of the NAAS of Ukraine
Viktor Ratoshniuk
ORCID: https://orcid.org/0000-0001-6937-7541
Doctor of Agriculture, Senior Research Fellow
Polissia Institute of Agriculture of the NAAS of Ukraine
(Zhytomyr, Rokyni, Ukraine)

CLUSTERING AS A MEANS OF DIVERSIFICATION OF THE HOP INDUSTRY

https://doi.org/10.5281/zenodo.15707628

Abstract
Ukraine is one of the few countries whose soil and climatic conditions are most fully adapted to the cultivation of aromatic hop varieties, the demand for which is growing every year, and the country with the greatest prospects for increasing the production of this valuable industrial crop. The industry's adaptation to market conditions was accompanied by a reduction in hop planting areas, lower crop yields and loss-making for most hop farms, and the use of traditional methods

to improve the efficiency of hop producers' operations was insufficient to overcome the crisis. In this regard, there is a need to develop and implement new mechanisms to stabilize the activities of hop producers that would take into account the constant changes in the market environment and adapt to them.
An important direction for the development of the hop industry and the growth of the efficiency of agro-industrial enterprises is to ensure the completion of the cycle of production and sale of finished products. In this regard, it is advisable to unite hop enterprises with processing and trading structures
The creation and development of a hop cluster will contribute to the optimization of socio-economic, organizational and technological processes, which will make it possible to increase the economic efficiency of the hop industry in Ukraine, namely: to form homogeneous batches of hop products of proper quality, to carry out primary processing of hops and organize sales, to ensure the use of modern complex mechanization of production processes and the cultivation of new high-yielding, competitive varieties of hops, as well as to organize the development of strategic development programs.

Keywords: *hop growing, cluster, diversification, integration, competitiveness.*

Today, Ukraine faces a real threat of a significant loss of hop industry capacity, but high demand for its products can serve as a motivation to restore production volumes before the experience and material and technical resources of hop enterprises are completely lost. The cluster model has significant potential in hop production, as it can become a strategic basis for the restoration of this industry in Ukraine. The essence of the hop cluster is to combine the efforts of related enterprises, financial, research, educational, trade structures and government institutions to ensure the production and sale of hop products that meet international standards. At the same time, the cluster members retain their economic independence, while gaining additional synergistic benefits from coordinating actions aimed at improving the efficiency of each cluster member.

In view of the above, the theoretical justification of the mechanism of organizing clusters in the field of agricultural production, in particular in the hop industry, requires further

development of fundamental and applied research. In view of this, it is important to define the concept of "cluster".

The founders of cluster analysis, who developed and substantiated a number of conditions necessary for the emergence of clusters at the sectoral and regional levels, are considered to be foreign scientists, in particular M. Porter (Porter, 2000). The problems of clustering processes in Ukraine are reflected in works (Kropyvko, 2010; Ulyanchenko, 2010). Having studied the theoretical and methodological aspects of clustering, L. Horoshkova, S. Lisovskyi and E. Khlobystov carried out a socio-geographical and economic substantiation of directions, models, mechanisms and priorities for improving the management system for the development of natural and economic systems and territorial-economic complexes in the context of decentralization based on the adaptation of M. Enright's cluster model (Horoshkova et al., 2020).

Having assessed and analyzed the institutional aspects of the state policy of cluster development as an integral part of the formation of an innovative model of agriculture, Y. Sydorov argues that the cluster approach is one of the defining global trends in the development of an innovation-oriented economy, primarily in the agricultural sector. However, the lack of legal and regulatory framework for the creation of a cluster organization of production and the recognition of a cluster as a self-governing economic association of enterprises makes it impossible to extend existing and develop new, specialized state support programs to it (Sidorov, 2017).

In Ukraine, the formation of cluster associations is at an early stage, while in economically developed countries clustering has become widespread in recent decades. The generally accepted interpretation of this concept is, on the one hand, to the perception of its essence as a set of industries and enterprises interconnected and interacting with each other in the sphere of circulation, which operate in the country without a clear geographical concentration, which is consistent with the use of the "competitiveness diamond" according to the methodology of the American scientist, professor of Harvard Business School M. Porter. On the other hand, this concept is used in relation to a local set of similar enterprises belonging to interrelated industries in a spatially limited area (Porter, 2000).

Some scholars define a cluster as "a group of geographically localized enterprises, research and production and financial companies interconnected by a technological link or oriented to a common market of resources or consumers, having a network form of management, competitive at a certain level and capable of generating an innovative component as the basis of their competitiveness in the markets" (Vnukova, 2011). M.F. Kropyvko notes that a cluster is an inter-economic territorial association of not only complementary enterprises (both large business and small business) that cooperate with each other, forming a closed technological cycle of large-scale production and sale of competitive final products (goods, services) while maintaining the legal independence of participants, but also infrastructure components, including public administration and scientific institutions that create favorable conditions for the production and promotion of products (Kropyvko, 2010). The authors agree with the opinion of N.L. Khomyuk, who emphasizes that the development of clusters is important for reforming local self-government, as it contributes to the creation of new jobs, development of industrial and social infrastructure in rural areas, formation of associations of enterprises with a closed cycle of production of finished products, reduction of the cost and price of agricultural and non-agricultural goods, and improvement of the quality of products sold, increasing the competitiveness of cluster members through the introduction of innovative technologies and access of products to regional and global markets (Khomyuk, 2019).

Diversification of agricultural production is possible through the creation of production associations and the introduction of cluster technologies in the agricultural sector of the economy at the national, regional or local levels. It should be noted that a cluster is a sectoral structure and has a broad innovation component that allows it to adapt to changes in the competitive environment. However, an industry, unlike a cluster, is a more flexible system that can separate a single link if it does not provide the appropriate product quality or if the company's development strategy does not coincide with the overall industry strategy.

The creation and functioning of clusters is based on a combination of formal and informal institutions that are implemented

in the form of sectoral cooperation and built on the principles of partnership, which contributes not only to the efficient use of production and resource potential, but also to the development of human capital, which is especially relevant in the context of war and post-war economic recovery in Ukraine (Sobkevych et al., 2024).

At the same time, a cluster cannot be formed without business entities, as they are technologically interconnected in the overall chain of final product production. The advantages of a cluster lie in its integrity, integration of production, high level of technology, and use of innovations. Consequently, a cluster is less costly and more competitive.

The difference between the cluster approach and the sectoral approach is the focus on innovative development, changes in productive forces and production potential, and the pooling of capital, which leads to an increase in assets in a certain territory.

The economic literature defines the features of a cluster, which scientists call the four "K" rule: concentration of enterprises of the same or related industries in one territory; competitiveness of their products; competition focused on better satisfaction of consumer needs; cooperation at the appropriate level (Cluster specialization patterns…, 1998).

It is worth noting that a cluster differs from ordinary types of cooperative business associations in the following ways: the presence of a large enterprise that forms the economic innovation and other strategy of the system for the long term; localization of most enterprises that are members of the cluster structure in the designated territory; stability of organizational, technological and economic ties of participating enterprises; coordination of cooperation of cluster members within the framework of its economic development, innovative solutions; quality control of products by technological links of their production; and the factor of innovation.

The advantage of cluster development is a rational combination of economic interests of the region and cluster members. The cluster concentrates the tasks of the economy and its priority areas, provides access to the necessary information about the economic activities of enterprises, the development of economic sectors, and the labor market (Sabluk & Kropyvko, 2010; Yushyn et al., 2010).

Taking into account the experience gained and foreign practice of

creating and operating clusters, the creation of a hop industry cluster requires some justification, which, on the one hand, will ensure the use of the existing potential for growing and processing hops, and on the other hand, will contribute to the diversification of production activities of agricultural enterprises, rural development and employment of the rural population, as well as reduce the risks of hop sales.

Among the countries of producers and consumers of hop production, it is advisable to distinguish four categories of countries by the level of development of the industry (Proposals for ensuring…, 2023):

1. Countries where hops are not grown, but at the same time beer is produced.

2. Countries where mainly bitter hops are cultivated, but at the same time there is a need for aromatic hop varieties.

3. Countries that import hops for intermediary trade, but have sufficient hops of their own for beer producers.

4. Countries that grow mainly aromatic hop varieties, but purchase bitter hops or their products to meet domestic needs for the production of regular beer. Aromatic hops grown in this group are also exported.

Based on these groups of countries, Ukraine belongs to the latter. Our country has an interesting history of industry development. With the most favorable conditions for growing aromatic hop varieties, the country has found its place in a small list of similar countries, including the Czech Republic, Germany, Poland, and Slovakia.

In the structure of the area under hops by continent, the leading place is occupied by Europe – 51%, America – 40%, Asia – 5%, Australia/Oceania – 3%, Africa – 1% (Figure 1.1).

Currently, the world's largest hop producer in terms of area and gross harvest is the United States, which in 2023 grew 37.2% of hops on an area of 40.2%, while Ukraine's share of the global market was catastrophically low – only 0.5% (in a country that was one of the largest producers of this crop in the last century). The top five leaders in the industry also include Germany, the Czech Republic, China, Poland, and Slovenia.

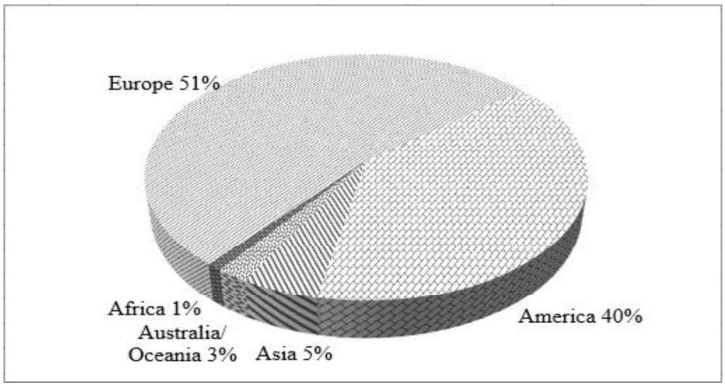


Figure 1.1 Distribution of hop acreage on the continents in 2023
Source: calculated according to (Hopsteiner; The Barth Report…, 2024)

More than 30 countries are engaged in hop growing in the world, but the top five countries account for 90% of global hop production and 93% of global α-acid production. The undisputed leaders of hop production play a major role in shaping the price of hops, and they determine the state of affairs on the global market. The rest of the world produces no more than 7% of the world's hops and mainly satisfies its domestic needs.

Ukraine has a favorable geographical location and favorable soil and climatic conditions for growing hops and selling hop products. The production areas of hop plantations are concentrated in the Polissya and Forest-Steppe zones, which are characterized by sufficient moisture for the crop and are most suitable for growing aromatic hops in the face of climate change. As a result, Ukraine has the opportunity to develop the hop industry, grow sufficient quantities of excellent quality raw materials to meet its own needs and increase its export potential.

In the mid – 1980s, Ukrainian hop growing was ranked fifth in the world after the United States, Germany, China, and Czechoslovakia in terms of planted area (9.4 thousand hectares) and gross harvest (8.0 thousand tons). Until 1991, about 4,000 tons of hops were exported annually outside the country. Ukraine was the main supplier of hops to the brewing industry, covering 70% of the raw material needs of the entire Soviet Union. In addition, the hop

industry was the most important budget-forming component of the agricultural sector in the Polissya region (Ryzhuk et al., 2019).

The decline in the production of raw hops observed in Ukraine since 1990 was caused by certain disorganizing factors: the anti-alcohol campaign (1985), the Chernobyl disaster (1986), the collapse of the USSR (1991), foreign producers' aggressive strategy of ousting domestic hop producers from domestic and foreign markets through dumping prices (1996-1997), lack of experience in the strategy and tactics of competition, violation of price parity for agricultural products, and a number of other reasons. All of this led not only to a reduction in the production of raw hop materials, but also to a sharp decline in the competitiveness of the Ukrainian hop industry.

The imperfection of the mechanism of transition to market conditions for agricultural enterprises (division of collective and state farms) has led to pronounced negative trends in the hop industry: hop production has significantly decreased, and the rate of its reproduction has dropped to a critical level. The consequences were a reduction in production, a decrease in the level of competitiveness of Ukrainian hops, and the displacement of domestic producers from the domestic market and the traditional foreign market, which was successfully mastered by competing firms from leading hop-growing countries. There was a shortage of domestic raw materials, which was replenished by imports of hop products. The growing demand of brewers for certain specific types of hop processing products (extracts) that are not produced in Ukraine, fluctuations in prices for raw hops on the global and domestic markets, and an insufficiently balanced varietal composition of hop plantations did not contribute to the normalization of the industry's development in a market environment.

In 2005-2010, the area under hop plantations was 1140.2-888.4 hectares. The area under hop plantations was decreasing every year until 2013. Since 2013, there has been a gradual tendency to increase the area of hop plantations from 377.6 hectares to 471.6 hectares in 2021, and the gross harvest, respectively, from 495.8 tons to 688.5 tons with a crop yield of 1.31-1.63 t/ha (Figure 1.2) (Ratoshniuk & Ratoshniuk, 2022).

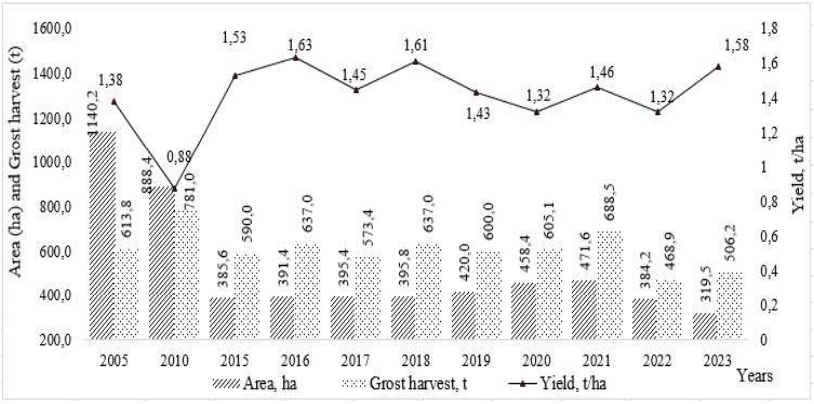


Figure 1.2 Hop production in all categories of farms in Ukraine, 2005-2023

*Source: calculated based on annual reports of hop enterprise*s

In 2023, the total area of hop plantations in Ukraine amounted to 524.3 hectares, of which hops were grown only on 319.5 hectares, with a gross harvest of 506.2 tons and a crop yield of 1.6 tons/ha. Hops products made from Ukrainian aromatic hops are highly valued on the international market, so in the future we can expect an increase in demand for domestic hop products (Ratoshniuk, 2024).

Domestic hop growing is losing ground, despite the high quality of Ukrainian hops, as the most capricious aromatic varieties prevail in cultivation. One of the reasons for this is that breweries agree to enter into agreements and buy only large batches of one variety with stable quality indicators. In practice, the vast majority of domestic hop farms produce hops of a single variety in volumes insufficient to load a pellet mill and ensure a minimum delivery batch. Large brewing companies with foreign capital have limited the use of domestic hop raw materials due to their own interest in supplying foreign-made hop products and currently hold a monopoly position in the market.

The development of the hop cluster will help optimize socio-economic, organizational and technological processes, which will increase the economic efficiency of the industry, namely: form homogeneous batches of hop products of proper quality, conduct primary processing of hops and organize sales, ensure the use of complex mechanization of production processes and grow new high-

yielding, competitive hop varieties. The company also organizes the development of strategic programs for the industry, targeted programs for territorial development, and the implementation of an effective management system based on logistics and controlling by enterprises and organizations.

The analysis of cluster theories has helped to identify the principles that form the basis of cluster formation (geographical, technological, qualitative, horizontal, vertical, focal and lateral). Their assessment allows us to conclude that these principles of cluster organization in the hop industry do not sufficiently reflect the current requirements for the formation of cluster structures. Taking into account the opinion of scientists, we propose to supplement the classification of cluster principles (Table 1.13).

Table 1.13

Basic principles of hop clusters in Ukraine

Principles	Content
Self-organization	• Historical prerequisites for the development of the cluster • Structural and functional similarity of hop enterprises in the cluster • Strengthening the interconnections of enterprises in the cluster structure • Creating favorable conditions for the functioning of the cluster
Intra-cluster cooperation and competition	• Competition between enterprises • Cooperation in entering the regional market • Efficiency and development of economic activity • Stimulation of the innovation process
A relationship based on shared economic interests	• Dependence of participants on each other's success • Increasing the level of innovativeness of production • Reducing autonomy and interaction in the cluster • Control, resolving disputes, developing joint activities, establishing external contacts
Corporatism	• Formation of the principles of a culture of behavior between participants • Reciprocity and understanding, a system of values, standards of behavior, methods of evaluating results, mutual control in resolving conflict situations • The possibility of exchanging information and experience through the organization of joint training

	• Simplification of the interaction procedure, cost reduction • Fulfillment of obligations to partners, reputation of enterprises and the cluster as a whole
Long-term cooperation	• Regulation of relationships • Constant, guaranteed supplies and high quality of services • Access to information, material resources, informativeness of participants • Interaction to achieve and maintain competitive advantages
Partial leadership	• Presence of a "pulling center" ("structure-forming leading enterprises") • The dominant factor is concentration around large leading manufacturing enterprises and research centers
Dynamism (flexibility)	• Constant "movement" of the cluster – continuous processes of formation, development and disintegration • Adaptation to changing market conditions • Emergence of new industries, expansion of product range
Complexity of resource use	• Uniting participants within a single, inseparable technological chain, integration and technological interconnection, unity of technological approaches, standards • Consistency of product production, participants are suppliers and consumers of each other's services • Focusing on end-user requests, expanding the product range • Improving business processes and management skills
Outsourcing specialization	• Delegation of responsibility, fragmentation of business functions • Transfer of auxiliary production under contracts to contractors, cost reduction and resource saving • Formation of new unique properties, access to better production technologies

These principles reflect the peculiarities of building cluster structures in the current conditions of economic development and the specifics of hop growing, for example, the complexity of resource use and outsourcing specialization.

In the Polissya region, there is a structural separation of

enterprises of the hop subcomplex, seasonality of production activities of hop farms, a low level of development of transport infrastructure and, as a result, low investment attractiveness of the industry. We have identified and systematized the factors that have a significant impact on the formation of the hop growing cluster (Table 1.14).

Table 1.14

Factors of formation and development of hop cluster

Factors	
Natural and climatic	Peculiarities of soil and climatic conditions. Varietal composition of hops.
Production	Formation of production costs of hop products. Technological cooperation of enterprises.
Infrastructure	Availability of land and energy resources. Financial infrastructure. Level of transport provision. Development of the service base (repair of machinery, equipment, delivery of components and spare parts).
Innovative	Ability to innovate (latest technologies for hop production and processing of hop products).
Investment	Investment process aimed at developing existing production and creating new enterprises. Creating attractive conditions for investors. Mechanism for implementing investment projects.
Попит і ринки збуту	Level of remoteness from sales markets. Possibility of entering interregional and external markets.
Personnel	Formation of personnel policy and improvement of scientific potential. Opportunity to acquire additional knowledge and improve professional training of personnel in the industry.
Administrative and legislative	Formation of points of contact between state bodies and enterprises of the industry. Lobbying of the interests of enterprises in state power structures. Regulatory and legal support for the activities of hop farms.
Ecological	Environmental sustainability. Environmental sustainability of production (soil restoration).
Competitive	The presence of threats that require the merger of enterprises and obtaining a synergistic effect from the integration process. The dominant position of a number of farms in the market of hop products in the regional market. Promoting competition at the

	regional level. The desire to achieve competitiveness in an integrated structure.
Administrative	Competence of managers. Availability of incentives for joint activities in an integrated structure by managers. Level of acceptance of economic changes by managers. Communicativeness of farms.

In order to form and develop a competitive hop growing cluster in Ukraine, the following conditions must be met:

1. Development of a competitive environment that focuses the activities of enterprises on reducing production costs.
2. The presence of common economic goals of the cluster members.
3. A common corporate culture that ensures the interaction of cluster members in the long term.
4. Formation of a cluster with the inclusion of enterprises that produce products with high added value and maximum integrated processing of hop raw materials.
5. Legislative support of the state's interests in the production of products with high market potential.

Thus, the advantages of the cluster approach include: increased employment in rural areas, the formation of rural infrastructure; effective regulation of investment flows through the development of cluster infrastructure; the possibility of providing benefits to hop farms, which is important for the development of the cluster, and the possibility of reorienting low-margin farms; growth of entrepreneurial activity in the cluster structure; effective development of inter-sectoral relations, dissemination of technologies, experience, and information; realization of innovation potential due to the coverage of all cluster enterprises by innovations.

The formation and development of a cluster policy can serve as a comprehensive solution to the problem of innovative development of hop growing (Table 1.15). The following are the motives for the development of the hop growing cluster: increasing the competitiveness of hop growing in the domestic and foreign markets; formation and functioning of the hop production market; the need to provide the industry with highly qualified specialists.

Table 1.15

Strategic positioning of the hop cluster in the region

Basic provisions for the formation of a hop growing cluster	Strategic opportunities
Functioning in certain segments of the regional market.	Meeting the growing needs of hop cluster enterprises in R&D, technologies, and material and technical resources.
Support for regional producers of hop products.	Stable relationships with financial and credit institutions, supporting the cluster's image.
Development of the innovative potential of hop-growing enterprises through the creation of new technologies and the use of new equipment.	Stable trade relations with suppliers of material and technical resources.
Increasing investment resources in regional hop growing.	Promotes the development of own material and technical base of hop farms and processing enterprises.
Formation of a sustainable information space to support bilateral relations between producers, processors and consumers of hop products.	
Interaction with state authorities to form relevant legislative acts.	

One of the growth points should be a project to form a domestic hop growing cluster. The existing resource potential of the region allows hop production to develop to a fundamentally new level. The cluster will be centered on hop-oriented agricultural enterprises that have accumulated significant practical experience.

In order to achieve this goal, it is advisable to provide effective methodological, informational, and advisory support for the implementation of the cluster formation project at the regional level, as well as to establish coordination of the activities of state executive authorities of the region and local governments, associations of agricultural producers in implementing the cluster initiative.

The formation of a competitive hop cluster includes 4 stages.

The first stage is the analysis and diagnostics of the preconditions for cluster formation, assessment of the motives of possible

participants, availability of necessary capital and resources, and analysis of the prospects for further development of participating enterprises. The main role is played by the cluster strategy, which is formed centrally from the top down – from the cluster management to the participants, assessing the possibility of forming a cluster and the availability of interested participants.

Marketing research includes analysis of the hop production market, supply and demand, and product price dynamics. Assessment of competitors and competitive advantages of the company. The study of the hop production market is carried out in several stages:

1. Assessment of uncontrollable macroeconomic factors:

a. economic factors – the structure of the regional economy and its specialization, inflation, tax and financial policy, purchasing power of the population;

b. natural factors – climate, availability of raw materials, ecology;

c. political and legal factors – socio-political system, level and peculiarities of compliance with the law;

d. international trends determine the global hop market and market price dynamics.

2. Assessment of competitive advantages of hop production in Ukraine. Competitive advantages are manifested through the cost and differentiation of products, flexible production.

3. Assessment of competitiveness at the regional level. The level of intra-industry competition is determined by monitoring the actions of possible competitors.

4. Influence of the price factor, which is the most important factor in determining the competitive advantages of enterprises. The price level affects the attraction of new customers, increase in purchase volumes, and stimulates repeat purchases.

5. Analysis of demand for hop products. It is necessary to determine the extent to which the supply meets the effective demand.

The motivation of potential cluster members is determined by their functioning and level of development, as well as their resource potential. Attractiveness for capital investments, long-term cooperation on mutually beneficial terms. The main aspect of the development strategy of enterprises in increasing market share and expanding production activities is the need for investment.

The second step is to develop the structure of the hop growing cluster.

1. Identification of potential participants in the cluster structure: identification of: enterprises that create added value in the cluster (hop farms, processing plants, beer production enterprises) with the determination of the level of their interdependence for the creation of the cluster; specialized educational and research institutions that provide personnel training; enterprises of production infrastructure.

2. Principles of cluster functioning: legal independence, economic and legal autonomy; strategic goal of the participants; common system of enterprise coordination; unified corporate culture (unified system of norms and values, performance evaluation, coordination); integration interconnection.

3. Formation of rules within the cluster – distribution and coordination of key functions, use of outsourcing: contractual system of interaction between enterprises; coordination in terms of joint activities.

4. Development of provisions that define the relationship between cluster members: on the basis of technology; using a common infrastructure; with common logistics; with a common marketing policy. In this case, these are the rules for admission and exit of an enterprise from the cluster; further functioning of the enterprise after exit from the cluster; regulations for violators of cluster ethics.

5. Human resource potential of participants: availability of qualified personnel of cluster enterprises and their stability; calculation of the labor intensity of the main works; staffing needs and the possibility of staff replenishment.

The third step is the formation of a hop cluster.

1. Formation of a management structure in the form of a coordination council (representatives of the structural hop growing and processing enterprises, educational institutions, research institutions, infrastructure enterprises) for interaction, distribution of responsibilities among the participants. The coordinating council controls the cluster development strategy, direction and coordination within the cluster, and distributes tasks between the council and participating enterprises. The council's responsibilities include developing a long-term business model in the production sector; coordinating R&D and implementing innovations in the research and

investment sector; attracting investment resources in the financial sector; and recruiting staff, relieving social tensions and shaping the cluster's corporate culture in the social and human resources sector.

2. Organization of the production structure – distribution of production capacities within the cluster structure, opening of new production lines. The opening of new production facilities is possible, in particular, on the basis of functioning enterprises within the cluster. The mechanism of joint activities of its members is determined.

3. Scale of joint activities of participants in the production of the same type of products based on minimum costs.

4. Norms and rules of interaction in the cluster (time, terms, volume of deliveries, number of deliveries, changes in these parameters). The cluster is supposed to have unified technological standards and production structure, and a quality management system.

5. Analysis of the existing staffing in the cluster: staffing (level of training and its permanence; staffing and training opportunities for cluster employees; labor intensity of the main production operations; level of interaction between enterprises and research and education institutions; forecast of the need for staff and ways to find specialists.

The fourth step is to assess the economic efficiency and development strategy of the cluster. The following indicators are used: production activity of cluster members; percentage of new enterprises and organizations; increase in production of high value-added products; ratio of small and medium-sized enterprises; staffing; volume of investments; volume of production.

Conclusions

The analysis and synthesis of theoretical and practical sources on clustering processes give rise to a number of conclusions.

In order to support the development of clusters in the agricultural sector, it is necessary to: ensure the integration of the cluster approach into the developed strategic programs for the development of industries, including hop growing, as well as targeted territorial development programs; develop measures to develop a mechanism for the implementation of a quality management system by enterprises and organizations to improve the value chain; develop

mechanisms for competitive support for applied research, public-private partnership projects in cluster development.

The main risks to the development of the hop cluster include: the risk of choosing wrong priorities for financing cluster policy measures from budgetary sources; the risk of insufficient coordination of activities in the implementation of cluster projects; low participation of state and local authorities in the implementation of cluster projects; the risk of low efficiency in monitoring the implementation of cluster policy due to the lack of a system of performance indicators.

The implementation of an effective cluster policy in the hop industry will be possible provided that: clear criteria are developed to assess the efficiency and effectiveness of cluster products; competitive and competitive mechanisms are used to support cluster initiatives; applying public-private partnership mechanisms as a prerequisite for financing cluster projects; organizing special educational programs for employees of government organizations on cluster policy development; adapting foreign experience and using tools to support cluster projects.

References:

1. *Porter, M. (2000). Strategy of competition. Methods of analysis of industries and activities of competitors. Trans. from English K.: Osnovy, 390 p.*
2. *Kropyvko, M. F. (2010). Conceptual approach to cluster organization and management of the development of agro-industrial production. Economy of agro-industrial complex. Issue. 11, pp. 3-13.*
3. *Ulyanchenko, O. V. (2010). Increasing the competitiveness of the agricultural sector of the Ukrainian economy on a cluster basis. Herald of Agrarian Science. Issue 10, pp. 56-59.*
4. *Horoshkova, L., Lisovskyi, S., Khlobistov, E. (2020). Management of sustainable territorial development using M. Enright's model of regional clusters. Problems of continuous geographical education and cartography. Issue 32, pp. 26-35.*
5. *Sidorov, Ya. (2017). The state policy of the development of clusters as an integral part of the formation of an innovative model of agriculture: an agrarian and legal perspective. Entrepreneurship, economy and law. Issue 2. pp. 115-120.*
6. *Vnukova N.M. (2011). Features of the formation of cross-border banking clusters. Actual problems of the development of the economy of*

the region. Issue 7(1). pp. 20-26. URL: http://nbuv.gov.ua/UJRN/aprer_2011_7%281%29__6.

7. *Khomyuk N.L. (2019). Clustering as a direction of diversification of the development of rural areas in conditions of decentralization. Bulletin of the Sumy National Agrarian University. Series "Economics and Management", issue 2 (80),. P. 75-80.*
8. *Sobkevych O.V., Shevchenko A.V., Rusan V.M. et al. (2024). Priorities of the development of the real sector in the conditions of war and post-war recovery of the economy of Ukraine: analytical supplement; edited by Ya.A. Zhalila. Kyiv: NISD, 104 p. URL: https://doi.org/10.53679/NISSanalytrep.2024.03. https://niss.gov.ua/sites/default/files/2024-02/ad_realsektor-2023.pdf*
9. *Cluster specialization patterns innovation styles. (1998). Den. Haag, p. 5.*
10. *Sabluk P. T., Kropyvko M. F.(2010). Clustering as a mechanism for increasing the competitiveness and social orientation of the agrarian economy. Economics of the Agricultural Industry. No. 1. pp. 3–12.*
11. *Yushyn S. O., Pavlyk V. P., Brusenko M. A. (2010). Methodological aspect of cluster management of the development of the agricultural sector. Economics of the Agricultural Industry. No. 4. pp. 128–132.*
12. *Proposals for ensuring the competitiveness of the hop industry in Ukraine. Institute of Agriculture of Polissya. Zhytomyr: LLC "Buk-Druk". 2023. 36 p.*
13. *Hopsteiner [Electronic resource]. URL: www.hopsteiner.com .*
14. *The Barth Report 2023/2024/ Joh. Barth & Sohn. Nuremberg, 2024. 40 p. [Electronic resource]. URL: www.barthhaasgroup.com*
15. *Ryzhuk S.M., Sukhoraba V.P., Nadtochiy P.P., Protsenko L.V., Tsybulskyi V.O., Ratoshnyuk T.M. (2019). The state of the hop industry in Ukraine and the possibilities of increasing its efficiency in modern conditions. Scientific Horizons, 2019. No. 7 (80). pp. 29-40. https://sciencehorizon.com.ua/uk/journals/7-80-2019/stan-galuzi-khmyelyarstva-v-ukrayini-ta-mozhlivosti-pidvishchyennya-yiyi-yefyektivnosti-u-suchasnikh-umovakh*
16. *Ratoshniuk T.M., Ratoshniuk V.I. (2022). Hop production – world and Ukrainian markets. Bulletin of Khmelnytsky National University. Series: Economic Sciences, No. 1 (302). pp. 278-283. https://www.doi.org/10.31891/2307-5740-2022-302-1-46*
17. *Ratoshniuk T.M. (2024). Assessment of the capacity of the domestic market for hop products. Bulletin of the Khmelnytsky National University. Series: "Economic Sciences". No. 2. pp. 247-254. https://doi.org/10.31891/2307-5740-2024-328-51*

Svitlana Reshmidilova
ORCID: https://orcid.org/0000-0003-1540-4019
Candidate of Economic Sciences, Associate Professor
Pavlo Aleynyk
ORCID: https://orcid.org/0009-0004-7701-4483
Graduate of the Third (Scientific) Level in the Specialty "Marketing"
Chair of Marketing
Khmelnytskyi National University (Khmelnytskyi, Ukraine)

SOCIAL RESPONSIBILITY OF BUSINESS IN THE CONTEXT OF STRUCTURAL TRANSFORMATIONS OF SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEMS

https://doi.org/10.5281/zenodo.15707718

Abstract
The social responsibility of business is substantiated as a defining feature of the sustainable development of socio-economic and ecological systems. The need for changes in the strategy of companies' activities and the mandatory condition for taking into account the principles of social responsibility for business are established. Types of social responsibility of business are identified and their characteristics are presented. Forms of environmental responsibility and measures for its implementation are proposed. Conclusions are drawn regarding the implementation of social responsibility at domestic enterprises and the advantages for the development of socio-economic systems are argued.

Keywords: *social responsibility, business, structural transformations, socio-economic systems, ecological systems.*

Introduction

A defining feature of the sustainable dynamics of development of socio-economic and ecological systems is the socially responsible activities of business and the state. In the conditions of modern transformations, socio-economic processes are unstable, and various types of risks are growing and intensifying.

The balance of social processes can be achieved by harmonizing the interests of economic entities and society, preventing the

accumulation of socio-economic and environmental deformations. In this aspect, the problem of social responsibility of economic entities through the formation of a favorable business environment becomes of particular importance.

The experience of international companies shows that the implementation of social responsibility contributes to ensuring competitive advantages in the market. Those enterprises that care not only about financial profits, but also about society and the environment, act in accordance with the declared mission, have a better business reputation and public trust. The implementation of measures to form a socially responsible business by domestic enterprises is an extremely urgent task for entering international markets.

To ensure long-term effects, companies need to implement the concept of social responsibility in their development strategies. The introduction of regular reporting on sustainable development in terms of ESG indicators will positively affect the business reputation of domestic enterprises and increase their competitiveness in the international market. Social responsibility of business contributes to the formation of a positive image, gaining trust and increasing the competitiveness of enterprises.

Materials and Methods

The study used the information search method – to obtain source data on the analyzed problem from literary sources and Internet sources; methods of logical analysis and classification – to determine the types and characteristics of social and environmental responsibility of business; systems analysis – to analyze the relationship between the constituent elements of environmental responsibility of business; abstract-logical method – to substantiate the purpose and objectives of the study, and formulate conclusions.

Literature Review

(O. E. Kuzmin, N. S. Stanasyuk, O. Z. Ugolkova, 2021) analyze approaches to defining the concept of "social responsibility", explore its types and manifestations. It is proposed to divide the factors that influence the formation and development of a company's social responsibility into two groups: action factors and support factors. A variant of the process of financial and economic support for social

responsibility is proposed.

The work (T. G. Bondaruk, I. S. Bondaruk, 2020) deepens the theoretical foundations of the formation of the economic nature of the organizational and economic mechanism of business social responsibility. The organizational and economic mechanism of business social responsibility should be aimed at organizing the interaction of business entities and the state for the development of social responsibility on the basis of state regulatory acts and at the initiative of business structures through the formation of partnership relations between the state, business, and society.

The study (I. V. Stankevych, O. V. Malovannyi, Malovannyi, G. O. Malovannyi, 2024) is devoted to the issues of the influence of business social responsibility on management efficiency. In particular, the authors systematized the factors of formation and influence of the information communications system within the framework of business social responsibility. The process of building and forming both institutions and the business environment in the context of constant social interaction of different groups of society is substantiated.

(G. Y. Luchko, 2024) devoted her work to the analysis of the development of social responsibility in Ukraine, the study of the sustainability of Ukrainian business in wartime and the main areas of activity of companies in the field of social responsibility. The article analyzes the level of development of social responsibility in Ukraine in comparison with neighboring countries.

In the work (L. S. Zakharkina, V. M. Novikov (2021) the essential characteristics of the social responsibility of business as a factor in increasing its attractiveness and trust from society are determined, an analysis of the foreign experience of EU countries in the development of ethical business principles of behavior of economic relations subjects and tools for their systematic observance is carried out.

(D. S. Bukreeva, K. V. Denysenko 2022) consider current issues in the field of social responsibility of business as a factor in ensuring business activity and its development in Ukraine in modern realities. Using a comparative method based on the analysis of statistical information to assess the application of European practice to Ukrainian business and standards approved by the program

documents of the European Union, the level of social responsibility of Ukrainian enterprises was investigated and ways to increase their business activity were identified. Measures were proposed to implement the European model of social responsibility in accordance with the values and characteristics of Ukrainian society.

(Zvarych R., Gomotyuk V., Rivilis I., Deyneka Y., 2022) analyzed the evolution of the theory of business social responsibility, identified approaches to the formation of business social responsibility, assessed business development in crisis conditions, identified macroeconomic problems and obstacles to international corporate governance, and proposed measures for the systemic improvement of the social responsibility of business entities. Despite the large number of developments in the field of business social responsibility, there are many issues that require further research in the context of structural transformations of socio-economic and environmental systems.

Results and Discussions

Modern trends in the development of public consciousness require corresponding changes in the strategies of companies, which has made it mandatory to take into account the principles of social responsibility for business. Modern consumers are increasingly aware of such acute social issues as income inequality, disparities in health care, unfair labor practices and gender inequality. Therefore, without reducing the priority of profit goals, domestic enterprises should balance this goal with other priorities, such as social responsibility initiatives.

International standards of social responsibility unify approaches to assessing the social responsibility of business at the national and international levels. However, they are developed by international organizations, which does not provide for their consolidation at the legislative level of a particular state. The adoption of the provisions of these standards is a voluntary initiative. There are certain difficulties in implementing the provisions of international standards of social responsibility of business by enterprises of Ukraine.

The provisions of international social responsibility standards at the national level should be reflected in the adoption of regulatory and legal acts, according to which each enterprise will form its own

approaches to business social responsibility. The development of its own internal, regulatory documents is a necessary condition for adapting the provisions of international social responsibility standards.

The principles of social responsibility are supported by the Global Organization for Standardization. The standard "ISO 26000. Guidance on social responsibility" helps companies understand how they can implement effective social responsibility practices, contributing to sustainable development (ISO 26000, 2011, Social responsibility). Certain aspects of social responsibility focused on investors are reflected in the Principles for Responsible Investment (PRI), which are aimed at analyzing the investment implications of environmental, social and governance (ESG) factors, as well as supporting an international network of investor signatories to consider ESG factors in investment decision-making and asset management processes (M. L. Varlamova, L. G. Sarkisyan, 2024).

Business social responsibility covers such main areas as: respect for human rights, business and corporate ethics, environmental protection, cooperation with stakeholders, compliance with international norms of conduct, transparency and accountability.

Types of business social responsibility and their characteristics are presented in Table 1.16.

Table 1.16

Types of business social responsibility

Type of social responsibility	Characteristic
Ethical responsibility	Caring for employee well-being, ensuring fair labor practices for staff (receiving fair wages and comprehensive benefits, creating a favorable working environment, etc.) and suppliers
Philanthropic responsibility	Fulfilling charitable responsibilities at the national and international levels. Donating to worthy causes, including human rights, national disaster relief, and clean water and education programs in underdeveloped countries.
Economic responsibility	Ensuring profit while benefiting the community and society, making financial decisions that prioritize good
Environmental responsibility	Responsibility for your impact on the environment in various forms

Each of the above types of social responsibility can take different forms. For example, ethical labor practices for suppliers means that companies will ensure that they use products certified as meeting fair trade standards.

Ensuring fair labor practices for workers means eliminating discrimination based on gender, race, or religion, ensuring equal pay for equal work, and providing a higher living wage.

Philanthropic responsibility means helping the poor, donating to charities, investing in education, healthcare, developing various industries, etc.

Economic responsibility maintains a balance between business, ecology, and charity. It manifests itself in cooperation with suppliers who use environmentally friendly materials, or in the case when the company has a fair wage policy.

For companies that follow the principles of social responsibility, it is important to consider the principles of environmentally friendly production. We are talking about environmental responsibility obligations, when a business takes responsibility for its impact on the environment. Depending on the size and industry of the business, environmental responsibility can take different forms (Table 1.17).

Thus, in Ukraine, the CO_2 emission tax is a component of the environmental tax. There is also a problem with waste disposal in the country. In many cities, the amount of waste exceeds the capacity of landfills. This leads to illegal dumping of waste into nature, which has a negative impact on the environment. Ukraine has legislation regulating waste disposal. However, one of the main problems in Ukraine is the underdeveloped infrastructure for waste disposal. The lack of investment and technological equipment complicates the implementation of modern disposal methods.

In Ukraine, programs to improve waste disposal are gradually developing. For example, some cities are introducing waste sorting at the population level and developing recycling systems, educational activities are being conducted to raise public awareness of the waste problem.

Today, companies need to focus on two main environmental areas: limiting pollution and reducing greenhouse gas emissions. In this context, companies are obliged to adhere to environmental responsibility in order to preserve life.

Table 1.17

Forms of environmental responsibility

Forms of environmental responsibility	Implementation measures
Reducing emissions into the atmosphere	1. Energy conservation and development of alternative energy sources. 2. Introduction of technical means of accounting for the consumption of fuel and energy resources, including gas meters, cold and hot water meters. 3. Replacement of existing lamps with energy-saving ones. 4. Increase in durable green spaces. 5. Establishment of a tax on CO_2 emissions since 2011 in Ukraine.
Implementation of energy-saving technologies	1. Energy-saving policy in the state, which provides for the creation of separate structural divisions of self-government bodies to avoid shortcomings that exist in the field of energy-saving management. 2. Formation of institutional foundations for involving the largest municipal and large enterprises of regions (especially environmentally hazardous ones), scientific and commercial financial institutions in the implementation of energy-saving projects. 3. Implementation of a cogeneration plant. 4. Selection of energy-saving technologies. 5. Improvement of equipment, increasing the continuity of the technological process, which creates conditions not only for saving fuel and energy resources, but also for the production of higher quality products. 6. Increasing technogenic safety.
Waste utilization and recycling programs	1. Use of modern waste processing technologies (incineration at landfills, plasma processing, pyrolysis at low temperatures, aerobic composting method). 2. Operation of equipment that has environmentally safe technological features of the process. 3. Development of programs for the disposal of used containers and packaging. 4. Attracting investments for the development of infrastructure and disposal technologies.

	5. Increasing information work and educational campaigns to raise public awareness of the importance of separate waste collection. 6. Improving control and implementation of legislation on waste disposal.
Measures to protect water, forest, land and other natural resources	1. State control over the use and protection of lands of all categories and forms of ownership. 2. Economic stimulation of the implementation of measures to protect and use natural resources and increase soil fertility. 3. Improvement of the system of financing and development of forestry and water management. 4. Develop and implement comprehensive measures to develop forestry, increase the ecological and economic potential of forests, as well as the protection, preservation and reproduction of forest plantations. 5. Ensure the reform of the system of state supervision in the field of environmental protection.

Source: compiled by the authors

The main elements of environmental responsibility are: the introduction of a corporate environmental policy, which involves compliance with environmental legislation, an open environmental policy, a system of environmental principles and standards; an environmental audit, which helps to determine the priority areas of the organization's environmental policy; involving employees in environmental initiatives; environmental friendliness of suppliers, which involves the use of environmentally safe raw materials and materials manufactured using environmentally friendly technologies; production of environmentally friendly goods (Ladunka & Symonenko, 2017).

An important legislative initiative to stimulate corporate social responsibility was the "Directive on Non-Financial Reporting", according to which large companies must report on the management of social and environmental challenges. It should be noted that there are no standardized rules and requirements in the field of non-financial reporting, and such reports cannot be compared between companies. This led to the adoption of the Sustainability Reporting Directive (CSRD) and the introduction of the European

Sustainability Reporting Standards – a set of 12 standards (EU Corporate Sustainability Reporting Directive (CSRD). How the new Directive is transforming the ESG reporting landscape and how businesses can meet the new requirements, 2023).

The CSRD Directive covers a broader range of topics than previous approaches to sustainability reporting. It addresses social aspects such as the treatment of employees within the organization, the principles of inclusion, equality and fairness, and value chain management. Social responsibility reporting is an important tool for monitoring, stimulating the achievement of sustainable development goals, and improving interaction between business, governments, and the public.

Conclusions

In Ukraine, social responsibility is beginning to take shape. Given Ukraine's involvement in globalization and international integration processes, it is necessary to intensify the implementation of its principles in the development of socio-economic and environmental systems in order to create a positive image of domestic enterprises in international markets.

It has been proven that the economic basis of the mechanism for regulating business social responsibility is state regulation, joint regulation and self-regulation of business social responsibility.

The implementation of the principles of social responsibility requires additional costs for business. At the same time, the focus on social responsibility improves the results of activity, is an important condition for the functioning of modern enterprises. The activities of enterprises in the direction of social responsibility will contribute to the stable development of modern socio-economic and environmental systems, the implementation of the concept of sustainable development. This will allow balancing economic, social and environmental development directions and achieving their organic combination in the activities of the enterprise.

References:

1. *Kuzmin, O. Ye., Stanasyuk, N. S., Ugolkova, O. Z. (2021). Social responsibility of business: concept, typology and factors of formation. Management and entrepreneurship in Ukraine: the stages of formation and problems of development. Vol. 3, Issue 2, pp. 56-64.*

2. *Bondaruk, T. G., Bondaruk, I. S. (2020). The economic nature of the organizational and economic mechanism of business social responsibility. Scientific Bulletin of the National Academy of Statistics, Accounting and Auditing: Collection of Scientific Proceedings. Issue 1–2, pp. 57–64. DOI: 10.31767/nasoa.1-2.2020.06. (Accessed 27 April 2025)*
3. *Stankevych, I. V., Malovannyi, O. V., Sakun, G. O. (2024). The impact of business social responsibility on management efficiency: modern aspects. Sustainable Development of the Economy. Issue. 1(48), pp. 41-46.*
4. *Luchko, G. Y. (2024). Business Social Responsibility in Ukraine. Economy and Society. Issue 67. DOI: https://doi.org/10.32782/2524-0072/2024-67-130 (Accessed 20 April 2025)*
5. *Zakharkina, L. S., Novikov, V. M. (2021). Review of trends in the development of socially responsible business in the EU. Bulletin of SumDU. Series "Economy". Issue 1, pp. 289-294.*
6. *Bukreeva, D. S., Denysenko, K. V. (2022). The impact of social responsibility of business as a basis for ensuring business activity of enterprises: a European integration aspect. Economy and Society. Issue 38. DOI: https://doi.org/10.32782/2524-0072/2022-38-52 (Accessed 28 April 2025)*
7. *Zvarych R., Gomotyuk V., Rivilis I., Deyneka Y. (2022). Business social responsibility as a tool of international corporate management in times of crisis. Bulletin of Economics. Issue 2, pp. 142–156. DOI: https://doi.org/10.35774/visnyk2022.02.142 (Accessed 27 April 2025)*
8. *ISO 26000. Social responsibility. URL: https://www. iso.org/iso-26000-social-responsibility.html (Accessed 30 April 2025)*
9. *Varlamova, M. L., Sarkisyan, L. G. (2024). Corporate social responsibility as a driver of sustainable development in the EU. Business Inform. Issue 12, pp. 42-48.*
10. *Ladunka, I. S., Symonenko D. A. (2017). Environmental social responsibility of enterprises in Ukraine. Economy and Society. Issue 13, pp. 917-923.*
11. *EU Corporate Sustainability Reporting Directive (CSRD). How the new Directive is transforming the ESG reporting landscape and how businesses can meet the new requirements. URL: https://kpmg.com/ua/uk/home/insights/2023/03/get-ready-for-a-new-level-of-esg-reporting.html (Accessed 30 April 2025)*

Halyna Skoryk
ORCID: https://orcid.org/0000-0002-6637-7252
PhD in Economics, Associate Professor of the Department of Theoretical and Applied Economics
Lviv Polytechnic National University
Nataliia Ivanytska
ORCID: https://orcid.org/0000-0002-3736-4110
Senior Lecturer of the Department of Theoretical and Applied Economics
Lviv Polytechnic National University
(Lviv, Ukraine)

ISSUES OF MANAGING THE ECONOMIC DEVELOPMENT OF TERRITORIAL COMMUNITIES

https://doi.org/10.5281/zenodo.15707734

Abstract
The development of a territorial community requires the effective use of its potential, taking account of all its aspects in developing and implementing the development strategy and other local regulations. Such an approach is directly related to ensuring the livelihoods of the territorial community and should meet the population's interests and the European principles of state regional policy.
The territory's economic development is facilitated by improving the mechanism of influence of local self-government bodies on determining the priority of regional economic development.

Keywords: *territorial community, social-economic development, sustainable development, decentralization, self-government.*

Introduction

In today's world, humanity faces numerous challenges, such as climate change, environmental degradation, and social inequality. The concept of sustainable development is therefore becoming increasingly important. Economic development involves improving the indicators of social-economic development, raising the level of welfare, ensuring progress in the social and labour sphere, etc. Achieving these goals requires joint efforts at all levels – from the

state to the local level.

The social-economic development of territorial communities contributes to the sustainable development of Ukraine. Active participation in sustainable development strategies at the local level can significantly improve people's lives, both now and in the future.

The problem of optimizing public administration, especially its improvement at the regional and local levels, remains relevant today. We need a model of state-building that guarantees the unity of state power while ensuring the independence of territorial communities. All of this convincingly demonstrates the need to reform public administration in Ukraine under modern European standards of public administration. The most successful concept for Ukraine is the concept of decentralization of power.

The main advantages of decentralization of state power are: transparency and simplification of the decision-making process, improvement of the quality of consideration of citizens' requests by the authorities, promotion of local economic development and strategic planning, more targeted use of budget expenditures for local priority needs, etc.

The disadvantages include: disproportionate and uneven socio-economic development of administrative-territorial units, the slowdown in the implementation of state programs against the background of the greater importance of local political priorities, mismatch of delegated powers and responsibilities with the resources of the state's activities, etc. (Kaczmarek, 2005).

Materials and Methods

Many scholars have studied theoretical and applied aspects of territorial community development, including T. Kaczmarek, V. Lobunets, I. Vereshchuk, V. Hatseliuk, A. Hetman, O. Danchev, and A. Grechko.

To investigate these issues, the researchers use several methods, including analysis of legislative acts and local development strategies, interviews with residents and experts, and comparative analysis with the experience of other communities.

The article is concerned with defining the problems of managing the economic development of territorial communities and developing measures to solve them.

Results and Discussion

Territorial communities play a special role in ensuring the development of modern society. The community is an essential element that shapes the ordinary of local self-government.

The social-economic development of territorial communities is a multidimensional and multifaceted process that is being considered from the perspective of various social-economic tasks. It is used in the following combinations: regional, city, territorial community development, and socio-economic development. Development is any progressive change, especially in the economic sphere (Kaczmarek, 2005).

We should like to draw attention to the fact that, in addition to purely economic characteristics, the parameters of social development are also taken into account, which have long been full-fledged indicators of the level of development of a regional community. Socio-economic development emphasizes the close connection between the economic development level and the practical solution of community social issues. Factors, internal capacities and reserves, and existing competitive advantages are the driving force behind local authorities, the economy is the engine of community development, and the criterion for development is meeting the needs of community residents, improving the living standards of the population, and raising living standards.

We consider the social-economic development of territorial communities as a process of transforming the foundations of material production, as well as a set of various relations between business entities and social groups. The social-economic development of territorial communities is a complex process, a joint activity of the society (a territorial community is a subject of socio-economic development activities), and the result of cooperation (partnership) between the authorities, businesses, and the community. An important component of such interaction is the level of taxation: the authorities set the rules, conditions, and levels of tax rates; the business pays taxes; and the community provides for socio-economic development through taxes (Figure 1.3).

Logically, social-economic development positively influences the entire local community, including local authorities, businesses, and citizens. In practice, it is necessary to find the optimal coincidence of

interests of all entities (business, government, community) interested in the progression of the territorial community. Interests must coincide in the sphere of tax administration, where, according to economic theory, there is a certain critical limit to the possibility of increasing the tax burden on taxpayers (Laffer's curve). It is difficult to find convergence points in the taxation level of interests interested in promoting the development of a territorial community. In practice, it is possible if there is an effective taxation mechanism.

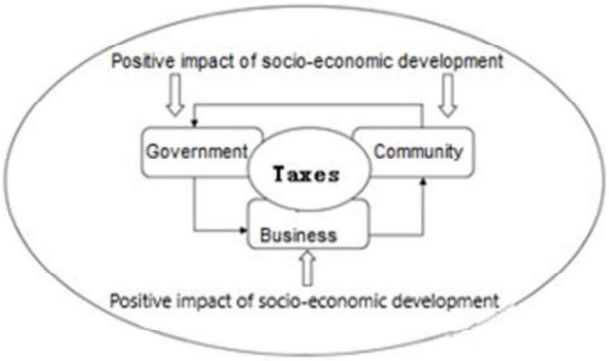


Figure 1.3 Cooperation of government, business, and community and the influence of socio-economic development on them

Source: created by the authors based on (Lobunets, 2019)

Economic development of territories forms the basis and is an important source of improving the population's quality of life. This is because interdependent economic development processes create conditions for the income growth of the citizens, consumption, education, and health care. They also create conditions that promote people's self-esteem by creating social, political, economic, and institutional systems to enhance personal reputation in society (Vereshchuk, 2015).

The most acute problems in the development of the social-economic sphere of territorial communities today are:

- The inconsistency of the actual system of public administration and territorial structure in Ukraine with modern

economic conditions and requirements for the efficiency of public authorities.

- Imperfection of mechanisms of financial and Budgetary Stimulation of Social and Economic Development of Regions (Hatseliuk, 2016);
- Inadequate staffing of local self-government bodies.
- An imperfect system of territorial location of infrastructure facilities.
- Illegality of property rights, including infrastructure facilities.
- Insufficient services provided to the population by local governments and social and economic facilities.

The concept of reforming local self-government and the organization of territorial power in Ukraine to ensure the social-economic development of the territory defines, in particular, the following ways and methods:

– providing transfers from the state budget directly to each local budget;

– determination of the financial basis for the exercise by local governments of their powers concerning taxes and fees related to the territory of the respective administrative-territorial unit;

– assignment to local budgets of a part of the funds received from the payment of income tax on newly created legal entities within five years from the date of investment in a legal entity;

– provide local governments with the right to regulate the rates of local taxes and fees;

– to provide local governments with access to credit resources for investment development by simplifying the procedures for obtaining loans and local guarantees and balancing them with state control methods aimed at preventing bankruptcy of municipal property;

– increasing transparency and efficiency of budget funds use by introducing the program-targeted method for all local budgets;

– determining the material basis of local self-government property;

– granting local governments the right to dispose of land resources within their territory, to combine their property and resources within the framework of cooperation between local governments to implement joint programs and provide more effective public services to the population of adjacent local

governments (On Voluntary Amalgamation…, 2020).

By implementing these concept tools the main provisions of the legal framework for local self-government, allowed for the formation of 1469 territorial communities over the 6 years of the decentralization reform, with 4882 municipalities joining voluntarily (On Principles of State…, 2023). As of September 1, 2022, the area of the formed TCs amounted to almost 47% of the total area of Ukraine. At the same time, more than 70% of Ukraine's population lives in TCs and cities of oblast significance.

The decentralization reform is having a huge impact on the socio-economic development of local authorities across Ukraine. Positive developments include the fact that local authorities have achieved financial autonomy and a certain degree of independence, and the expansion of the infrastructure of settlements is gradually creating comfortable living conditions for citizens. Social standards are improving and the quality of services provided to the population is rising. An adequate level of educational services has been achieved to promote the comprehensive development of children. The administrative and municipal services system is being reformed; community residents have felt responsible for the development of the territories in which they live, etc.

Negative consequences of decentralization for the social-economic development of local authorities include: imperfect and unstable legislation; the risk of socio-economic differentiation between wealthy and poor communities; lack of a system of control over the legality of local government activities; lack of basic management training.

Ukraine joined the Council of Europe in 1995, taking on the responsibility to comply with European standards, particularly in local and regional democracy. In this regard, the European Charter of Local Self-Government was ratified in 1997, and the Additional Protocol on the Right to Participation in Local Self-Government was ratified in 2014.

Regulatory documents also support this vector. The State Strategy for Regional Development for 2021-2027 (State Strategy for Regional…, 2020) stipulates that the new regional development policy will involve the creation of a culture of partnership and cooperation as part of the strategic planning course for the interaction

of citizens and public institutions in terms of development.

The use of the intellectual potential, knowledge, and skills of the country's population in socio-political and economic life is becoming increasingly important, as it is the involvement of the population in public administration that is the most important resource for increasing the efficiency and competitiveness of the country, region, community (Hetman, 2008).

Ukraine has created a constitutional framework for local self-government, ratified the European Charter of Local Self-Government, and, as a result, adopted fundamental legal acts that created a legal and financial basis for the activities of local self-government bodies.

Nowadays, the executive functions of rayon and oblast councils are performed by local state administrations. Currently, the local government reform is designed to address three main issues:

– reducing excessive government centralization, which leads to high levels of corruption with poor management decisions and political inconsistency in the development and implementation of community interests;

– addressing the problem of the weak material and financial base of local authorities, which is the reason for the low quality of public services;

– solving the problem of excessive fragmentation of administrative-territorial units, which does not ensure a high level of professionalism of local government officials.

The local government system is currently in an unsatisfactory state and is not adapted to the needs of society.

According to (On Voluntary Amalgamation…, 2020), the subject of voluntary amalgamation of territorial communities is the adjacent territorial community of villages, towns, and settlements. About 12,000 territorial communities have been established in Ukraine, with more than 6,000 communities having a population of less than 3,000 people, 4,809 communities having a population of less than 1,000 people, and 1,129 communities having a population of less than 500 people.

Most of these settlements do not have executive bodies in their respective village councils, do not have budgets, and do not have the necessary utilities.

Therefore, local governments in such municipalities practically do not exercise the powers vested in them by law. There are 5,419 local budgets with a 70% share of subsidies, while 483 local budgets with a 90% share receive funding from the state budget.

The vast majority of local governments in Ukraine (especially local governments in villages, and towns of district significance) remain unable to fully exercise their local self-government powers due to their excessive fragmentation and extremely weak financial base.

This results in the provision of low-quality public services at the local level, with depopulation of the rural population, deterioration of rural areas, and excessive burden on the state budget due to the need to finance the activities of local governments.

According to the research, it has been found that the legal, organizational, and material activities of local authorities and local self-government bodies have recently been strengthened, namely:

– creating mechanisms for local administrations and the population to exercise control over the provision of public services by local governments and territorial bodies of central executive authorities;

– quality standards for the provision of public services and quality assessment criteria were introduced;

– favourable legal conditions are created for the widest possible involvement of the population in decision-making and the development of forms of direct popular power;

The development of the territory is facilitated by improving the mechanism of influence of local governments in determining the priority of regional economic development.

These aspects, however, should be strengthened because of their systemic nature, as they have been chaotic steps so far. Today, many specialists and experts are working on this topic. However, research in this area is necessary to form a systemic and effective factor in strengthening the worldview of the need for constant movement.

Problems in managing the economic development of territorial communities may include insufficient coordination between government agencies, inadequate infrastructure development, environmental issues, instability of economic growth, and the lack of a clear strategy for sustainable development. To solve these

problems, effective cooperation between the authorities, local communities, and experts from various fields is necessary.

Some important problems may include a lack of investment in the restoration and development of tourism infrastructure, the absence of an energy efficiency program for residential buildings, problems with water supply and water treatment, and the instability of local budgets. In addition, it is important to consider the socio-cultural and environmental aspects of sustainable development management, as they also affect the lives of local people and the conservation of natural resources.

Additional aspects for research may include waste management issues, including the lack of an effective waste collection and recycling system, which can lead to environmental pollution. It is also worth considering the development of small and medium-sized enterprises as a key factor for creating new jobs and stimulating economic growth in the community. Some other possible problems include lack of access to quality education and healthcare services, insufficient attention to the development of cultural and sports initiatives, and transportation accessibility issues. In addition, it is important to analyze the existing resources and potential of the community for development to identify the optimal areas of activity and effectively use them in planning and implementing sustainable strategies.

Conclusions

Summarise the problems of managing the economic development of territorial communities, we will present some measures to improve them:

– Recruitment of investments to improve and develop tourism infrastructure, including hotels, restaurants, entertainment facilities, and tourist routes.

– The reconstruction and upgrade of the existing infrastructure will increase the flow of tourists and boost community revenues.

– Introduce programs to encourage small businesses in the tourism sector to support local entrepreneurs.

– Introduce a subsidy program for residents to install energy-efficient heating and insulation systems.

– Organizing information campaigns and training events on the

rational use of energy resources.

– Conducting an energy efficiency audit of residential buildings and developing individual plans for modernization.

– Introducing sorting lines and recycling systems to reduce the amount of household waste sent to landfills.

– Organizing information campaigns to popularize waste recycling and implementation of eco-friendly technologies.

– Creating favourable conditions for development by providing financial support, counselling, and training for entrepreneurs.

– Organizing exhibitions, fairs, and other events to promote the goods and services of local entrepreneurs.

– Promoting the development of tourism and recreational enterprises, which will increase revenues and create new jobs.

– Expanding the network of educational institutions and medical facilities by constructing new ones or remodeling existing ones.

– Ensuring access to quality education and medical services for all of the population groups through the network of public institutions.

– Organizing information campaigns on the importance of education and preventive healthcare.

– Financial support for local cultural events, festivals, and sports competitions to preserve and develop traditions and personal identity.

– Create infrastructure for sports and entertainment, such as sports grounds, parks, and sports clubs.

– To expand the network of transportation routes and improve the condition of roads and highways.

– To develop the public transportation system and provide comfortable conditions for pedestrians and cyclists.

– Enabling staff development and training.

– To strengthen cooperation between communities.

Territorial community development requires efficient use of its potential, solving emerging problems, and developing and implementing a sustainable development strategy.

References:

1. *Kaczmarek, T. (2005) Struktury terytorialno-administracyjne i ich reformy w krajach europejskich. Poznań : Wydawnictwo Naukowe UAM. 391 p*

2. *Lobunets, V. (2019). Assessment of the results of administrative territorial system and local government reform in Ukraine. Management and Entrepreneurship: Trends of Development, 1(07), 80-92. URL: https://doi.org/https://doi.org/10.26661/2522-1566/2019-1/07-09*
3. *Vereshchuk I. (2015) Systematic approach to the study of administrative and territorial structure. Efficiency of public administration. Vol. 42. p. 255–265.*
4. *Hatseliuk V. O. (2016) On the criminalization and decriminalization of certain forms of mercenaries in the context of the constitutional principle of the rule of law. Constitutional Polylogue. 20 Years of the Constitution of Ukraine: Society and Government in the Constitutional Process. Collection of abstracts of the International Scientific and Practical Conference. Kyiv: VAITE. p. 221-235.*
5. *Law of Ukraine "On Voluntary Amalgamation of Territorial Communities". No. 157-VIII. (2020, May 14). Vidomosti Verkhovnoyi Rady Ukrayiny. URL: https://zakon.rada.gov.ua/laws/show/157-19#Text*
6. *Law of Ukraine "On Principles of State Regulatory Policy in the Field of Economic Activity".No. 1160-IV(2023, December 24). Vidomosti Verkhovnoyi Rady Ukrayiny. URL:https://zakon.rada.gov.ua/laws/show/1160-15#Text.*
7. *State Strategy for Regional Development for 2021-2027 Approved by the Resolution of the Cabinet of Ministers of Ukraine. No. 695. (2020, August 5) URL: https://zakon.rada.gov.ua/laws/show/695-2020-%D0%BF#Text*
8. *Hetman A. (2008). Principles of the administrative and territorial structure of Ukraine. University Scientific Notes. Vol. 3. p. 49-54.*

Nataliia Suprun
ORCID: https://orcid.org/0000-0002-3889-8579
Doctor of Economic Sciences, Professor
State Organization "Institute of Economics and Forecasting of the National Academy of Sciences of Ukraine"
(Kyiv, Ukraine)

SOCIAL ENTREPRENEURSHIP AS A MECHANISM OF ECONOMIC SOLIDARITY

https://doi.org/10.5281/zenodo.15707748

Abstract
The chapter explores social entrepreneurship's institutional foundations and dynamics in selected European contexts, with particular attention to Ukraine. It highlights the role of social enterprises in promoting economic solidarity through inclusive employment, social reintegration, and support for vulnerable groups. The Ukrainian case demonstrates how social entrepreneurship has evolved as a response to social crises, particularly during wartime. Despite the diversity of national approaches, the lack of a global vision remains a limiting factor. The chapter argues that social enterprises are critical in fostering cohesion and building a more equitable and resilient economy.

Keywords: *social entrepreneurship, social isolation, economic solidarity, social cohesion, inclusive development, social innovation, public policy.*

Introduction

In response to the global social challenges of recent decades, a new form of business – social entrepreneurship (SE) – has been gaining popularity. Its primary goal is to address and/or mitigate social problems through business methods, thereby contributing to positive socio-economic transformations in society. The growing interest in and development of this entrepreneurial model have been driven by the intensification of socio-economic contradictions at both national and international levels, which has highlighted the need for new, more relevant mechanisms to solve complex social issues. One

of the most pressing challenges is the critical gap in income and economic opportunities among different social groups, which has led to an increase in social isolation. Social isolation, manifested in the limited access of certain population groups to social benefits, resources, and opportunities to realize their economic potential, not only deepens social inequality but also threatens the integrity of the social structure by reducing trust and social cohesion. Traditional state and market mechanisms for overcoming isolation have often proven insufficient to effectively address this issue. In contrast, social entrepreneurship – as an organizational form that combines economic activity with a social mission – can serve as an effective tool for reducing social isolation and strengthening economic solidarity. Social entrepreneurship as an innovative form of economic activity plays an important role in addressing contemporary socio-economic challenges in Ukraine's transitional economy (Suprun & Yelisieieva, 2017). Despite the active development of social entrepreneurship in recent decades, academic discourse still lacks a comprehensive understanding of how this organizational form can systematically and sustainably address social issues within specific national contexts. This gap underscores the need to analyze existing practices, identify effective models, and outline the conditions under which social entrepreneurship can serve as a viable mechanism for supporting socially vulnerable groups and enhancing social cohesion.

Materials and Methods

This study employs a qualitative and comparative research design to examine the potential of social entrepreneurship as a mechanism for addressing social isolation and promoting economic solidarity in specific national contexts. The methodological approach integrates the analysis of scientific literature, official statistical data, regulatory frameworks, and case studies of social enterprises operating at both national and international levels. Comparative analysis was used to evaluate selected domestic and international practices in order to identify effective models and mechanisms through which socially oriented entrepreneurial activity can contribute to mitigating socio-economic inequality and enhancing social cohesion. Particular attention was given to the ways in which social enterprises engage with vulnerable social groups and foster inclusive economic

participation. In addition, the study applies content analysis to academic publications and policy documents to detect prevailing trends, narratives, and conceptual approaches within the scholarly discourse on social entrepreneurship. The theoretical and methodological foundation of the research draws upon interdisciplinary perspectives from economics, sociology, and public policy, with a specific focus on the concepts of social capital, economic solidarity, and inclusive development.

Results and Discussions

The primary objective of most social enterprises (SEs) in global practice is to create conditions for employment and resocialization, thereby reducing social exclusion among the most vulnerable groups of the population, such as persons with disabilities, refugees, former prisoners, and the elderly. An equally important mission of social entrepreneurship lies in addressing environmental challenges and promoting a culture of responsible consumption. Accordingly, key types of social enterprises include inclusive entrepreneurship, green business, veteran-led enterprises, creative and cultural entrepreneurship, craftivism, academic and school-based enterprises, sports-related ventures, and advocacy-oriented businesses.

Social enterprises are purposefully designed to generate social impact, which entails solving or alleviating a social issue (in a broad sense), improving quality of life, and, according to J. Kickul and T. Lyons (Kickul & Lyons, 2012), transforming an undesirable social condition into a more desirable one. The social mission is reflected through several key parameters: the deliberate creation of positive social impact or added social value (through problem-solving or quality-of-life improvements); reinvestment of profits into social goals; innovation; organizational sustainability; and an ethical corporate culture shared and enacted by all members of the organization.

Unlike traditional businesses, social enterprises are non-profit-distributing in nature: they typically lack shareholders or private owners who derive personal financial gain from the enterprise. Instead, revenues are reinvested to address social problems. While the direct beneficiaries of SEs are often specific target groups, such as the socially excluded or marginalized, the ultimate beneficiary may also be society at large. By addressing critical social challenges,

SEs contribute to reducing social tensions and building a sustainable social ecosystem.

In contrast to both traditional enterprises and even socially responsible businesses, social enterprises prioritize the achievement of their social mission, which is non-negotiable and cannot be sacrificed for financial or consumer-oriented goals. While traditional entrepreneurs are more likely to pursue high-risk, high-reward strategies aimed at maximizing profits, social entrepreneurs focus on reducing social problems, creating added social value, and maximizing public welfare. In this context, social value, rather than profit – is the primary criterion for success.

Nonetheless, achieving commercial viability remains essential, as it serves as the economic foundation for fulfilling the social mission. In this model, profit generation is not the goal but a means to a social end. In contrast to conventional economies, where social resources are used to achieve commercial success, social entrepreneurship reconfigures this relationship – economic activity becomes a tool for realizing social objectives.

Moreover, social entrepreneurs prioritize long-term social returns on investment and seek both commercial and social sustainability over time. Given that social enterprises must retain the essential features of commercial ventures-namely, a viable business model and financial self-sufficiency – many countries allow for hybrid financial models that combine business revenues with non-commercial funding sources, such as philanthropy. Accordingly, social enterprises may incorporate non-profit components within their organizational structure.

A distinctive feature of social entrepreneurship is that it typically operates in sectors and market niches that are unpopular for traditional businesses (such as services for socially isolated citizens, eco- and resource conservation, etc.). However, as research shows, social enterprises operating in these areas create additional opportunities by utilizing resources previously untapped in social production, thereby generating competitive advantages for social enterprises. At the same time, social entrepreneurship demonstrates its effectiveness not only as an organizational form of economic activity but also as a means of strengthening social cohesion and engaging the population in addressing societal problems. It fosters

the development of social behavior patterns that, in turn, enable the growth of economic competitiveness and the resolution of many social contradictions. A characteristic feature of the organizational culture of social entrepreneurship is an innovative business ethic founded on the values of solidarity, cohesion, and mutual assistance, which are shared and practiced by all members of the organization.

The history of social entrepreneurship spans several centuries, but its active development began in the second half of the 20th century. According to the European Commission, social enterprises currently constitute 10% of all European businesses (2 million), employing over 6% of the workforce. Among European countries, social entrepreneurship is most widespread in the United Kingdom, where the first social enterprise – the Rochdale Society of Equitable Pioneers – was established in 1844. This was the first consumer cooperative organization, founded to unite workers and consumers to create better living and working conditions. Operating on principles of democracy, fairness, and mutual assistance, the Society became a model for the cooperative movement worldwide.

Today, the UK has approximately 131,000 social enterprises, generating around £24 billion for the economy. The social enterprise sector currently employs 2.3 million people – over 5% of the country's working-age population. London alone hosts over 3,000 social enterprises with an annual turnover of £4 billion, employing more than 105,000 people. The total annual turnover of social enterprises in the UK amounts to £60 billion (Social Enterprise UK, 2022).

According to the State of Social Enterprise Report UK, two-thirds of social enterprises (69%) provide various services to socially vulnerable groups, 44% employ such populations, and 28% operate in deprived regions. The most common sectors for social enterprises in the UK are services (72%), including education (18%), consulting (17%), and employment and professional reorientation (14%). A significant share (28%) operates in material production, particularly agriculture (13%). About one-quarter of UK social enterprises derive their main income from the sale of goods and services. The report states: "Social enterprises are a reliable business competing in open markets while addressing some of society's biggest problems – from homelessness and addiction to mental health and social care –

creating opportunities and reducing inequality. They demonstrate to traditional businesses how social impact and profit can go hand in hand" (Social Enterprise UK, 2023).

A national study on social entrepreneurship in Germany, conducted by the Center for Social Investment (CSI) Heidelberg, identified three key characteristics of social enterprises: improvement of environmental or social well-being as the primary goal of their activities; innovations that support the development of the social sector and may target a combination of social and economic goals; and new products, services, or marketing strategies. In Germany, where about 100,000 social enterprises are employing over 2.5 million workers, a distinctive feature of social business is the sustainability of social enterprises, more than half of which have existed in the market for over 10 years, and 25% for over 30 years.

There is a trend towards the founding of social enterprises. According to the German Startup Monitor of the German Startups Association, more than 40% of new entrepreneurs define themselves as belonging to the social entrepreneurship sector (German Startups Association, 2022).

The most popular sectors for social enterprises include education and science (in the form of cyber-kindergartens, alternative educational institutions, qualification courses), social services, use of alternative energy sources and eco-conservation, advocacy, and financial consulting.

In Belgium, the emergence of more modern market-based approaches to social entrepreneurship, widely promoted through appealing communication strategies, was initially not positively received by established "social economy" networks. Criticism was directed at the new wave of social entrepreneurship supporters, accusing them of prioritizing marketing communications over systemic actions aimed at achieving social impact. However, despite these concerns, exchanges and collaboration have recently increased significantly, leading to recognition of the potential complementarity and synergy between traditional and social businesses (Country report Belgium, 2020).

Social entrepreneurship has also significantly developed in Eastern Europe in recent decades, particularly in the Czech Republic and Poland, where social business activities focus on tasks such as

creating jobs for people with disabilities, promoting mobility in employment, eco-conservation, and protection of UNESCO historical and cultural heritage sites (Kowalski & Novak, 2021).

Overall, in EU countries, the most popular fields of activity for social enterprises are alternative forms of social assistance, development of renewable energy and eco-conservation, advocacy, financial consulting, and educational projects.

The most famous social enterprise in the world is the Grameen Bank, founded in 1976 by Professor Muhammad Yunus, who proposed applying a microcredit program to support the self-employment of poor people in Bangladesh. The success of the Grameen project contributed to the popularization and recognition of social entrepreneurship worldwide, evidenced by Yunus being awarded the Nobel Peace Prize in 2006. Currently, the number of Grameen Bank borrowers has reached 7.5 million, with a total loan volume exceeding $6 billion, and a loan repayment rate of 99%, a record in the banking sector (Grameen Bank Annual Report, 2023).

At the end of the 20th century, the active spread of social entrepreneurship contributed to the creation of international organizations promoting this social movement through experience exchange, consulting, and financial support. For example, in the United States, the international organization Ashoka was founded in 1980 by Bill Drayton. Ashoka unites social entrepreneurship leaders from 60 countries, whose activities address the most pressing social issues of our time. Ashoka is a pioneer in social entrepreneurship and social change leadership development. Its mission is to support social innovators – people who solve social problems in unconventional, innovative ways. The organization provides these innovators with financial support, mentorship, and a global network of like-minded peers. The most well-known program is Ashoka Fellows, a network of leaders who receive fellowships and support to implement their projects. Ashoka operates in more than 90 countries and brings together thousands of social entrepreneurs changing systems in education, healthcare, human rights, ecology, and economic development (Ashoka, 2023).

The rise in popularity of social entrepreneurship (SE) in the second half of the 20th century necessitated the development of an appropriate legal framework and regulatory mechanisms within

European business practices. In most EU countries (Belgium, Croatia, Denmark, France, Italy, Luxembourg, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom), specific policies exist that include a wide range of programs and support mechanisms for the development of SE. However, the content and scale of government support for social enterprises vary significantly across countries.

One of the pioneers in institutional and legislative support for SE was the United Kingdom, where in 2004 a legal norm was adopted defining a separate form of social enterprise – the "socially oriented company" (SOC). Simultaneously, a Social Enterprise Unit was created within the Department of Trade, which was restructured in 2006 into the Cabinet Office, responsible for overseeing the public sector's activities. This body's function is to provide state support, public encouragement, and promotion of social enterprise development. In 2013, the UK passed the Social Value Act, which significantly expanded the opportunities for social enterprises in providing social services. According to this law, local authorities, when contracting for goods or services, must consider the criterion of social value, primarily defined as improving the quality of social services.

Germany has developed a national strategy for SE development, which includes funding by federal banks and EU structural funds, as well as regional and local support. For more than 30 years, the organization Social Impact has operated in Germany, positioning itself as an "agency for social innovation", supporting thousands of startups with a social mission. Since 2011, the Social Impact Labs national incubator has operated in Germany for social entrepreneurs and freelancers, providing consultations, training, and facilitating communication between social entrepreneurs and potential institutional partners. Overall, German state policy aims not only to stimulate but also to prevent unfair competition in this new segment of public services. This position is reflected in legislation regulating the notion of "public good", producers of which are exempt from corporate income tax. At the same time, the law imposes strict limits on profit distribution by social enterprises. However, despite the well-developed support ecosystem, existing startup structures still fail to sufficiently consider the interests and personal situations of

women. (German Startups Association, 2022).

In Norway and Denmark, special government programs support social entrepreneurship within partnerships between various economic sectors, providing informational, training-consulting services and institutional support to social entrepreneurs.

In Poland, the Ministry of Family, Labor and Social Policy has established the Department of Social Economy (DSE). Its tasks include creating conditions for the development of social entrepreneurship and social cooperatives; organizing cooperation between public administration and social economy entities, including social enterprises and cooperatives, as well as NGOs and other entities engaged in socially beneficial activities (Ministry of Family, Labor and Social Policy of the Republic of Poland, 2023).

Founders of social enterprises in Poland are exempt from registration fees and may receive a one-time financial aid to start entrepreneurial activities, not exceeding four times the average salary per founder member of the social enterprise. To encourage their activities, social enterprises are granted tax and credit privileges.

Considering certain historical differences in the development of social enterprises within various national traditions, different approaches to defining the essence of social entrepreneurship have emerged in global practice.

The most common organizational and legal forms of social enterprises are as follows:

– Socially oriented company (SOC), Community interest company (company operating in the interests of the community) (United Kingdom),
– Social Solidarity Cooperative (Portugal),
– Social cooperative of collective ownership (France),
– Social cooperatives (Italy).

In Ukraine, unlike Western practice, the social entrepreneurship sector began forming relatively recently – about 25 years ago – and currently includes several hundred actively operating social enterprises. These enterprises are not highly competitive compared to traditional businesses, but have a significant impact on addressing urgent social problems.

The development of social entrepreneurship in Ukraine received a new boost with the onset of the Russian-Ukrainian war in 2014. In

the face of urgent challenges, when the state struggles to cope with a surge of social issues, social entrepreneurship has become one of the main ways to address them. Most social enterprises focus on problems caused by the war: resocialization, advocacy, and overcoming stigmatization of vulnerable groups such as internally displaced persons, people with disabilities, and war veterans. Leading forms of social enterprises in Ukraine now include veteran and inclusive businesses. Now, the veteran business sector comprises over 200 companies, including even chain restaurants.

Despite the diversity of forms and sectors of social enterprises, a common feature across different national traditions is the definition of social entrepreneurship as an innovative form of socio-economic activity that combines a social mission with an entrepreneurial function and is based on the principles of sustainable self-sufficiency, democratic governance, and a primary focus on creating social added value.

Recent studies show that social enterprises outperform traditional businesses in terms of growth rates and the application of innovations in production. They demonstrate better outcomes in reducing inequality, creating jobs, and building an inclusive economy (Social Enterprise UK, 2023). Practice shows that social enterprises represent society more broadly than other businesses; their activities involve a greater number of representatives from various socially isolated groups, and the leadership of social enterprises includes more women than in traditional businesses. The proportion of women setting up social enterprises is significantly higher than the proportion of women starting new firms in general. Social enterprises expand the economic and social opportunities of communities by ensuring the participation of direct beneficiaries of social services in decision-making. However, a significant limitation to the development of social entrepreneurship is the lack of a coherent global vision regarding its forms and fields of activity.

Conclusions

Given the institutional potential of social entrepreneurship to address a wide range of socio-economic problems – such as inclusive employment, resocialization, advocacy, and overcoming the stigmatization of vulnerable populations (internally displaced persons, people with disabilities, war veterans, etc.) – this type of

business can be considered an effective mechanism for societal solidarity by promoting social cohesion and inclusive employment. This, in turn, enhances overall economic efficiency and creates potential competitive advantages for socially marginalized groups, business owners, and society as a whole.

An institutional prerequisite for the effective development of social entrepreneurship should be a government support program for social entrepreneurship, which primarily involves the regulation of the legal status of this specific organizational form of business and the development of framework conditions for their operation, the absence of which complicates the development of social entrepreneurship in many countries.

Government support should be aimed at creating favorable conditions for the development of social entrepreneurship, which includes:

– the development of a system of microcredit and favorable lending for social enterprises;

– reduction of the tax burden and creation of a system of tax incentives for social enterprises;

– support for cross-sectoral partnerships and initiatives of the public sector at the level of territorial communities;

– formation of a favorable ecosystem for the development of entrepreneurial structures, including support for the development of social innovations (incubators and accelerators for social startups);

– informational and consulting support, creation of a state register of social enterprises, and promotion of the very idea of social entrepreneurship.

To effectively respond to social challenges and the uncertainty of the future, it is necessary to take as a model for inspiration and guidance a social enterprise model that has proven its effectiveness in global business practice. The use of global development experience will contribute to the creation of sustainable forms of social entrepreneurship, which will help overcome social crises and lay the foundation for a new economic model of management based on the values of inclusivity and social cohesion and ensure economic solidarity in society.

References:

1. *Ashoka. (2023). About Ashoka. https://www.ashoka.org*
2. *German Startups Association. (2022). German Startup Monitor 2022. Retrieved from https://www.startupverband.de/fileadmin/startupverband/media/dokumente/DSM_2022.pdf*
3. *Grameen Bank Annual Report, (2023). https://grameenbank.org.bd/archives/annual-report*
4. *Kickul, J., & Lyons, T. S. (2012). Understanding social entrepreneurship: The relentless pursuit of mission in an ever-changing world (2nd ed.). Routledge.*
5. *Kowalski, P., & Novak, M. (2021). Development of social entrepreneurship in Eastern Europe: The cases of Czech Republic and Poland. Journal of Social Business Studies, 12(3), 45–60.*
6. *Marthe Nyssens, Benjamin Huybrechts (2020). Social Enterprises and Their Ecosystems in Europe. Country report Belgium.*
7. *Ministry of Family, Labor and Social Policy of the Republic of Poland. (2023). Department of Social Economy. Retrieved June 5, 2025, from https://www.ekonomiaspoleczna.gov.pl/o-departamencie/*
8. *National Strategy for Social Innovations and Social Enterprises (2023). Berlin: BMWF. Retrieved June 5, 2025, from https://sigu-plattform.de/wp-content/uploads/National-Strategy-for-Social-Innovations-and-Social-Enterprises.pdf*
9. *National study on social entrepreneurship in Germany. Heidelberg: University of Heidelberg. European Commission. (2022).*
10. *Social Enterprise in Belgium: A Diversity of Roots, Models and Fields. Retrieved June 5, 2025, from https://emes.net/icsem-working-papers/Belgium_-_Huybrechts_et_al.pdf*
11. *Social Enterprise UK. (2022). State of Social Enterprise Report UK 2020. https://www.socialenterprise.org.uk/*
12. *Social Enterprise UK. (2023). Mission Critical – State of Social Enterprise Survey 2023. Retrieved from https://www.socialenterprise.org.uk/social-enterprise-knowledge-centre/the-state-of-social-enterprise/*
13. *Suprun, N. A., & Yelisieieva, L. V. (2017). The development of innovative forms of enterprise in Ukraine in the context of globalization in the 21st century. Scientific Bulletin of Polissia, 4 (12), 212–215. https://ekmair.ukma.edu.ua/server/api/core/bitstreams/630264ae-a5a2-43df-a8f5-3012b317c5c0/content*

Svitlana Tolochko
ORCID: https://orcid.org/0000-0002-9262-2311
Doctor of Pedagogical Sciences, Professor, Chief Researcher of the Department of Extracurricular Education Institute of Problems on Education of the NAES of Ukraine
Nataliia Bordiug
ORCID: https://orcid.org/0000-0002-3489-4669
Doctor of Pedagogical Sciences, Professor, Leading Researcher of the Department of Extracurricular Education Institute of Problems on Education of the NAES of Ukraine, (Kyiv, Ukraine)

THEORETICAL SUBSTITUTION OF THE IMPORTANCE OF FORMING ENVIRONMENTAL COMPETENCE OF STUDENTS FOR THE SUSTAINABLE DEVELOPMENT OF ECOLOGICAL SYSTEMS

https://doi.org/10.5281/zenodo.15707772

Abstract
The study carried out a structural and systemic analysis to determine the impact of environmental problems of modern Ukraine on the formation of students' environmental competence, high school students' in particular. The author analyses the works of environmental researchers and identifies the following types of environmental problems: the impact of the "noise of war" on ecosystems, the global problem of demining through the Ukrainian vector, the potential danger to the environment and the population from petrochemical pollution of the geological environment as a result of hostilities, environmental threats to the objects of nature reserves of Ukraine in the wartime period, etc. A number of important factors that influence motivation and involvement of high school students in activities to overcome the environmental consequences of war are identified: awareness of the environmental risks of war, understanding of the relationship between war and environmental problems, civic engagement and participation in environmental initiatives, development of problem-solving skills, integration of environmental topics into curricula, technological and digital support, motivation to act, development of critical thinking,

preparation for crisis situations, ethical values and preparation for future responsibility.

Keywords: *environmental issues, sustainable development, overcoming the environmental consequences of war.*

Introduction

The role of environmental issues in the world is extremely important and has far-reaching consequences for people, ecosystems and the natural environment in general. Today, the world's main environmental problems are actualised: preservation of biodiversity (destruction of natural environments, pollution of water bodies, loss of habitats for animals and plants, and thus threats to biodiversity, species extinction and destruction of ecosystems, which has serious consequences for ecological diversity and environmental sustainability) human health (many environmental problems, such as air and water pollution, deforestation and soil contamination, have a direct impact on human health; polluted environment can cause the development of various diseases, reduce the quality of life and shorten its duration). In addition, climate change due to greenhouse gas emissions, deforestation and air pollution, etc. are also global issues. This can lead to extreme weather conditions, rising sea levels, changes in the distribution of water resources and other serious consequences for ecosystems and human life. Environmental problems often cause significant economic losses. The destruction of natural resources, the loss of jobs in natural resource-dependent sectors of the economy, and the costs of dealing with the consequences of environmental disasters all have a negative impact on the economy of a country and the world as a whole.

The above-mentioned environmental issues play an important role in the world, affecting biodiversity, human health, climate change and the economy. Addressing these issues requires joint efforts of national and international communities.

The war in today's Ukraine has a negative impact on wildlife due to various factors, such as ammunition explosions, chemical pollution, construction of fortifications, fires, mining, and others.

Materials and Methods

The research presents the results of the search for the development of environmental competence to overcome the environmental consequences of war, ensure sustainable environmental safety in the future; create new generation environmental programmes and action plans for the restoration of territories affected by hostilities. The following methods were used in the course of the study: theoretical: theoretical analysis and synthesis of literary sources; comparison, generalisation; deductive, inductive; systematic, formalisation; idealisation; empirical: pedagogical observation, generalisation of pedagogical experience.

Results and Discussion

A number of Ukrainian scholars have conducted in-depth research on identification and characterisation of the above-mentioned environmental problems. The following areas have been developed: the impact of the "noise of war" on ecosystems (Bezsonov, 2022), the Concept of creating an intelligent information system to support decision-making in the field of environmental safety (Bondar, Mashkov, Prysyazhnyi, Ovodenko, Pechenyi, 2023), the impact of the full-scale aggression of the Russian Federation against Ukraine on the activities of environmental NGOs in Ukraine (Buhaichuk, 2022). The author analyses the global problem of demining through the Ukrainian vector (Horbulin, 2022), the potential danger to the environment and the population from petrochemical pollution of the geological environment as a result of hostilities (Dinyak, Koshlyakova, 2023), and environmental threats to the objects of the Ukrainian protected areas in the wartime period (Roman, 2022). Reflections on how the war affects our environment through the characterisation of Russian crimes on Ukrainian soil (Litvinova, 2023), analysis of the environmental and economic consequences of Russia's war against Ukraine (Perga, 2023; Sak, Bilyo, Tkachuk, 2022). In the context of Ukraine's current losses, studies assessing the impact of hostilities on the state of nature reserves and their biodiversity are urgent (Spryahailo, Bezsmertna, Havryliuk, Iliukha, Osypenko, Spryahailo, Shevchyk, 2023).

A number of Ukrainian scholars have carried out in-depth studies on the identification and characterisation of environmental problems

and have sought to assess the impact of military operations on the state of the nature reserve fund of Ukraine, which has raised the issue of preventing environmental pollution during the war in Ukraine and overcoming the environmental consequences of the war. This, in turn, draws attention to the issue of the readiness of public authorities and social movements to carry out these activities, which is currently unexplored and insufficiently implemented. In addition, it raises the problem of the focus of the modern educational process on the formation of environmentally literate students as future conscious citizens and residents of territorial communities who are able to use the acquired knowledge in practical activities, in particular in the development of environmental programmes and action plans for the restoration of territories affected by hostilities to overcome the environmental consequences of war.

For example, Y. Bezsonov, studying the impact of the "noise of war" on the ecosystems of Ukraine, argues that the issue of noise impact on the environment associated with the operation of military equipment and the use of firearms is poorly understood. This problem makes it impossible to assess the scale of ecosystem changes caused by Russia's military invasion of Ukraine. Author developed a table for determining the amount of environmental damage for noise pollution of ecological systems by specifying the source of noise pollution (military (human resources), trucks, cars, tanks, aircraft, helicopters, cruise missiles, artillery, armoured personnel carriers, multiple launch rocket systems, navy), the number of units, and damages for "increased noise and disturbance" in thousands of UAH). Based on the calculations, the researcher determined the amount of damage in the amount of UAH 180,816.9 thousand per day (averaged).

Summarising the results of the study, Y. Bezsonov draws the following conclusions:

– after the end of the war, fines for violations of environmental legislation should be increased. Calculations have demonstrated this;

– if it is impossible to assess the negative impact of war noise on animals and plants (by species), the amount of damage should be based on the rates of the "quiet season", supplemented according to the realities;

– for the duration of the war, consider the violation of the "season

of silence" as of 24 February and continue every day until its end. Every day of Russian armed aggression disrupts the normal functioning and development of biodiversity in Ukraine (Bezsonov, 2022).

Scientist V. Horbulin, in his scientific study of the global problem of mine clearance through the Ukrainian vector, emphasises the concern of the UN and the progressive international community about the growing number of types of mine weapons and the increasing negative consequences of their use during armed conflicts, the increase in "deaths of both combatants and non-combatants – civilians, among whom a significant proportion of the dead are children... Ukraine ranks fifth in the world in terms of the number of mine casualties and casualties among non-combatants and is among the three countries with the highest number of tragic accidents involving anti-tank weapons during normal life, on the way to school or during games. In addition, the presence of mines and shells complicates the repair of important infrastructure damaged by shelling" (Horbulin, 2022). Among the reasons are the obsolescence of ERW detection equipment, which remained in the USSR without the necessary repair facilities; the lack of modern Ukrainian complexes and means of detecting ERW; and the lack of funding for the production of modern complexes and means of detecting ERW13. The author cites the example of a study by the Scientific Centre for Aerospace Research of the Earth of the Institute of Geosciences of the National Academy of Sciences of Ukraine on the development of technologies for automated mine detection using UAVs' species-specific reconnaissance equipment. This highlights the need to train future specialists in the management of such drones for the demining of Ukraine of the future.

Scientist O. Vasyliuk attributes the reflection-study "Is it possible for war to preserve nature" to a wide range of war impacts on wildlife caused by ammunition explosions, chemical pollution, fortification construction, fires, landmines, and other factors. "If we analyse the impact on wildlife of the Russian-Ukrainian war, which began with the full-scale invasion on 24 February 2022", the author argues, "the most affected ecosystems are forests". The loss of forests as natural ecosystems is a loss of ecosystem services, which are identified with the beneficial properties of nature that create

living conditions. “The restoration of natural ecosystems in damaged areas will create important conditions for the preservation of habitats that deserve protected status, and thus may well be counted among Ukraine’s successes in implementing the EU Biodiversity Strategy 2030 and many other international commitments in the field of nature protection” (Vasyliuk, 2023).

L. Roman, analysing the environmental threats to the objects of the nature reserve fund of Ukraine during the wartime period, emphasises their importance: the creation and expansion of these territories is the most effective mechanism for preserving the biological gene pool, protecting natural ecosystems, unique natural areas, landscapes and rare species of flora and fauna. Having studied some Red Data Book flora of protected areas in certain regions of Ukraine, the scientist concluded that there are no reliable estimates of the areas of vegetation fires and the reduction of biodiversity in the conflict zone. Therefore, there is a need for further research in the post-war period. L. Roman states: “A lot of effort is needed to preserve the uniqueness of Ukraine’s natural habitats during the war and in the post-war period” (Roman, 2022).

O. Dyniak and I. Koshliakova investigated the potential danger to the environment and the population from petrochemical contamination of the geological environment as a result of hostilities, which is one of the most serious environmental problems and disasters of its spread, affecting the lives of all creatures on Earth. It takes a lot of effort, time, and financial costs to eliminate it. Preliminary damage assessment requires an investigation to determine whether long-term and serious damage has been caused. “The latter can be determined only by the results of comprehensive and long-term monitoring of the environment, which will create an effective system of measures that will eliminate the consequences and minimise the damage to the environment from military operations in the shortest possible time” (Dinyak, Koshlyakova, 2023). In addition, the authors emphasise the importance of conducting educational and information campaigns for the public to familiarise them with the consequences of petrochemical contamination of groundwater and to make them aware of the need to develop environmental awareness. The above activates conscious participation of the public in managing water resources and ensuring

their sustainable protection.

A team of researchers led by T. Sak analysed the environmental and economic consequences of the Russian-Ukrainian war and divided crimes against the environment "into categories: energy security, damage to industrial facilities, nuclear hazard, impact on ecosystems, impact on the marine ecosystem, livestock waste, other military actions" (Sak, Bilyo, Tkachuk, 2022). The authors emphasise the criticality of Ukraine's economic losses. They point to the correlation between crimes against the environment in the long term and an increase in mortality and serious illnesses among Ukrainians in the future, in particular those caused by environmental pollution. Emphasising the duration of activities to restore the country's environmental and economic security in all its components, they predict a long-term practice that will become mandatory for high school students to restore safe living conditions in the territories of territorial communities.

The presented environmental challenges caused by the war have actualised environmental competence, which is now an integral part of modern education. In this context, it is important to provide high school students with the knowledge and skills necessary to understand and overcome these problems.

The study of the impact of environmental problems in modern Ukraine on the formation of environmental competence of high school students to overcome the environmental consequences of war makes it possible to identify a number of important factors that affect the motivation and involvement of high school students in activities to overcome the environmental consequences of war. Let us elaborate on them (Tolochko, Bordyug, 2024).

1. Awareness of the environmental risks of war. High school students in Ukraine, living in an environment where military events have a serious impact on the environment, may be more aware of the environmental risks associated with armed conflicts. Understanding environmental issues allows high school students to comprehend the seriousness of the situation and the need for action to address it. They understand the environmental problems that can arise as a result of war and how they can affect their lives and those of future generations.
2. Understand the relationship between war and environmental

issues. Studying the relationship between war and environmental issues, such as water pollution, ecosystem destruction, and emissions of harmful substances, can help students develop a deeper understanding of not only the problem itself but also possible solutions. Understanding the impact of environmental issues on the development of environmental competence helps high school students increase their environmental awareness. They learn to identify environmental risks, distinguish between different types of pollution and assess their consequences.

3. Public activity. Participation in environmental initiatives. Environmental issues mobilise high school students to actively participate in civic initiatives and activities aimed at protecting nature and reducing the negative impact of humans on ecosystems. Knowledge about environmental problems that may arise as a result of war can motivate high school students to participate in environmental initiatives aimed at protecting the environment and minimising the effects of war on nature.

4. Developing problem-solving skills: in-depth understanding of environmental issues related to armed conflict can help develop skills in situation analysis, problem-solving strategies and participation in civic initiatives.

5. Integrate environmental topics into the curriculum. Including topics related to the environmental problems of war in the curriculum can help high school students better understand the complexity of the situation and engage them in active participation in addressing these problems. Interactive lessons, practical assignments and visits to environmental events can increase their environmental competence.

6. Technological and digital support. The combination of technological, digital and environmental competences of high school students creates a powerful tool for overcoming the environmental consequences of war. For example, using drones (technological competence), high school students can take aerial photographs of areas affected by hostilities. The images can be processed using special software (digital competence) to analyse the extent of damage and create maps of the environmental situation. Knowledge of environmental processes (environmental competence) will allow them to develop plans to restore these areas and prevent further environmental disasters.

7. Motivation to act: Understanding the importance of environmental issues and their impact on people's lives encourages high school students to take active steps to address them. They can take part in civic initiatives, be responsible with their own consumption and engage in environmental education. High school students who understand the seriousness of environmental issues may be more motivated to make conscious environmental decisions in their daily lives. This may include participating in environmental groups, collecting garbage, and taking energy-efficient measures.

8. Development of critical thinking: Studying the impact of environmental issues on environmental competence contributes to the development of high school students' critical thinking. They learn to analyse information about environmental issues, distinguish facts from myths and make informed decisions. Environmental issues require high school students to analyse the situation, develop strategies to solve problems and make informed decisions. This helps to develop their critical thinking and analytical skills.

9. Preparing for crisis situations: Understanding the impact of environmental issues on the development of environmental competence also prepares high school students for crisis situations, including war. They can be more aware of the possible environmental consequences of war and be prepared to take action to address them.

10. Ethical values. Preparing for future responsibility Understanding environmental problems and how to overcome them contributes to the development of high school students' environmental values, such as responsibility towards future generations and respect for nature. Developing environmental competence in high school students helps them prepare for future responsibility for the environment and natural resources.

Table 1.18

Factors influencing the motivation and involvement of high school students in activities to overcome the environmental consequences of war

No.	Key Aspect	Description
1	Awareness of the environmental risks of war	High school students living in wartime conditions better understand the environmental risks of armed conflicts and their impact on the environment and future

		generations.
2	Understanding relationship between war and environmental issues	Studying problems such as water pollution, ecosystem destruction, and emissions of harmful substances helps students better understand the problem and find solutions.
3	Civic activity. Participation in environmental initiatives	Knowledge about environmental consequences of war motivates students to participate in nature conservation projects and initiatives aimed at reducing human impact on ecosystems.
4	Developing problem-solving skills	Deep understanding of environmental problems contributes to the development of analysis, problem-solving, and participation in civic initiatives.
5	Integrating environmental topics into the curriculum	Including topics related to the environmental consequences of war in school subjects encourages active participation through practical tasks and interactive lessons.
6	Technological and digital support	Combining technological, digital, and environmental competences (e.g., drone usage, image processing, damage analysis, recovery planning) creates a powerful tool for overcoming the consequences of war.
7	Motivation to act	Understanding the importance of environmental issues encourages students to act: join eco-groups, be conscious consumers, engage in environmental education, participate in clean-ups, and implement energy-saving practices.
8	Development of critical thinking	Students learn to analyze environmental information, distinguish facts from myths, make informed decisions, and develop strategies for solving problems, enhancing their analytical and critical thinking skills.
9	Preparation for crisis situations	Awareness of the environmental consequences of war helps students be prepared for emergencies and act effectively during environmental crises.
10	Ethical values. Preparing for future responsibility	Forming environmental values (responsibility for future generations, respect for nature) prepares students to care for and protect the environment in the future.

Conclusions

Thus, modern Ukraine is facing numerous environmental problems, which is a challenge for society and, in particular, for the younger generation. The development of high school students' environmental competence is particularly important in the context of the environmental crisis. It not only prepares students for active participation in solving environmental problems, but also fosters their responsibility for the environment.

The impact of environmental problems in modern Ukraine on the formation of environmental competence of high school students to overcome the environmental consequences of war can be significant and play an important role in shaping their conscious position and activity to overcome the environmental consequences of war and preserve the natural environment for future generations, encouraging them to take conscious action, develop critical thinking and civic engagement.

Educational programmes aimed at developing environmental awareness will help to create a generation that is able to take a responsible attitude to the environment and actively participate in its preservation and restoration. It is important to equip high school students with the knowledge, skills and motivation to actively participate in environmental restoration and preservation. This will contribute not only to the environmental, but also to the socio-economic revival of the affected regions.

References:

1. *Безсонов, Є. (2022). Вплив «шуму війни» на екосистеми України. Екологічний вісник. Vol. 3. Pp. 25–26.*
2. *Бондар, О.І., Машков, О.А., Присяжний, В.І., Оводенко, Т.С., Печений, В.Л. (2023). Концепція створення інтелектуальної інформаційної системи для підтримки прийняття рішень у галузі екологічної безпеки. Екологічні науки. № 3(48). Pp. 7–16.*
3. *Бугайчук, А. (2022). Вплив повномасштабної агресії російської федерації проти України на діяльність екологічних громадських організацій в Україні. Вісник Львівського університету. Серія філософсько-політологічні студії. Vol. 44. Pp. 163–170.*
4. *Василюк, О. (2023). Чи можливо, щоб війна зберегла природу? Перед майбутнім. Київ: Аванпост- Прим. Pp.394–421. P. 395*
5. *Горбулін, В. (2022). Світова глобальна проблема розмінування: український вектор. Екологічний вісник. Vol. 3. Pp. 21–24.*

6. *Диняк, О.В., Кошлякова, І.Є. (2023). Потенційна небезпека для довкілля та населення від нафтохімічного забруднення геологічного середовища внаслідок бойових дій. Екологічні науки. Vol. 6(51). Pp. 136–141.*
7. *Роман, Л.Ю. (2022). Аналіз екологічних загроз об'єктів ПЗФ України у воєнний період. Екологічні науки. Vol. 3(42). Pp. 84–88.*
8. *Літвінова, В. (2023) Російські злочини на українській землі: як війна впливає на наше довкілля. Інтерфакс-Україна. Інформаційне агентство. URL: https://interfax.com.ua/news/blog/896719.html*
9. *Перга, Т.Ю. (2023). Екологічні наслідки війни Росії проти України. Війна проти України : ДУ «Інститут всесвітньої історії НАН України». URL: https://ivinas.gov.ua/viina-rf-proty-ukrainy/ekolohichni-naslidky-viiny-rosii-proty-ukrainy.html*
10. *Сак, Т., Більо, І., Ткачук, Ю. (2022). Еколого-економічні наслідки російсько-української війни. Економіка та суспільство. Вип. 38. URL: https://www.economyandsociety.in.ua/index.php/journal/article/view/1261*
11. *Спрягайло, О.В., Безсмертна, О.О., Гаврилюк, М.Н., Ілюха, О.В., Осипенко, В.В., Спрягайло, О.А., Шевчик, В.Л. (2023). Перші кроки до оцінки впливу воєнних дій на стан об'єктів природно-заповідного фонду та їхнє біорізноманіття. Екологічні науки. Vol. 6(51). Pp. 142–141.*
12. *Толочко, С.В., Бордюг, Н.С. (2024). Екологічна компетентність учнів у контексті подолання екологічних наслідків війни : монографія. Київ: Компринт, 160. https://doi.org/10.32405/978-617-8171-93-3-2024-160*

Chapter 2

INNOVATION, INVESTMENT AND DIGITALISATION FOR RESILIENCE, SUSTAINABLE AND INCLUSIVE DEVELOPMENT OF SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEMS

Daiva Aktas
ORCID: https://orcid.org/0009-0007-0489-7328
Lecturer, Master's Degree
Department of International Business
Rasa Bražulienė
ORCID: https://orcid.org/0009-0001-5260-0273
Lecturer, Master's Degree
Department of Transport Engineering
Vilniaus kolegija/Higher Education Institution
(Vilnius, Lithuania)

THE ELECTRIC CAR THROUGH THE EYES OF THE LITHUANIAN CONSUMER: BETWEEN SUSTAINABILITY AND PRACTICAL CHOICE

https://doi.org/10.5281/zenodo.15707781

Abstract
Sustainability is playing an increasingly important role in society. It is commonly associated with climate change. However, the definition of sustainability goes beyond climate change to include social issues and sustainable economic development. Focusing on sustainability ensures a positive shift towards a circular economy, accelerating the development of the Green Deal, which creates real opportunities to meet the needs of today's population while at the same time enabling future generations to be spared harm. Climate change is a major focus, and the energy sector is having a huge negative impact through the greenhouse effect. The European Union's goal is to reduce greenhouse gas emissions by 2030 (Aplinkos ryšio projektai [Environmental Connectivity Projects] [ARP], 2024).

Current sustainability policies are encouraging the public to rethink their mobility habits, and the development of electric vehicles is becoming one of the key areas for a sustainable transport system. However, the pursuit of sustainability is not identical to consumer decisions, which are often determined by practical factors such as technological constraints, infrastructure, cost, etc.
The paper analyses the attitudes of Lithuanian consumers towards EVs based on the results of an empirical study, revealing the key drivers as well as constraints for the choice of EVs. The results of the study allow to clearly identify the main barriers and motivators in the development of sustainable mobility strategies.

Keywords: *sustainability, climate change, mobility, consumer, electric vehicle.*

Introduction

Sustainability is the process of achieving long-term welfare impacts in human consumption by changing behaviour and empowering people to take responsibility for the results of actions. We live in a time when, with the acceleration of global climate change and the increase in greenhouse gas emissions, transport is becoming an important factor in determining further changes that will alter the situation both nationally and internationally. In order to improve this situation, it is important to talk about electric vehicles, which can make a significant contribution to environmental protection, the reduction of CO_2 emissions and the use of fewer resources, reducing the negative impact on the environment, while at the same time promoting sustainable economic development.

In Lithuania, policy measures aim to encourage consumers to purchase electric vehicles, but the choice is not only driven by sustainability concerns, but also by practical factors such as habits, price, speed of technology deployment, etc. In the Lithuanian context, the consumer is caught between two poles: sustainability and practical considerations, and these aspects are of particular importance in the choice.

Research problem. What determines consumers' choice to buy an electric car?

Objective. The aim of the paper is to analyse the attitude of Lithuanian consumers towards electric cars, assessing the

sustainability and practical considerations that determine their choice.

Research methods. The paper is based on the analysis of scientific literature and quantitative research data.

Originality/Value. Changes affecting climate change in the energy sector, reducing CO_2 emissions and shaping new consumer habits in the mobility process by choosing more sustainable means of transport (electric cars) address the issue of the planet's survival for future generations.

Materials and Methods

The concept of sustainability was first used in the United Nations World Commission on Environment and Development's 1987 report Our Common Future, which set out a vision of sustainable development as the maintenance of harmony between human beings, the natural world and the interrelationships between people, nature and societies (Aplinkos apsaugos institutas [Environmental Protection Institute] [AAI], 2025).

Sustainability is important to preserve natural resources and ensure their future use. It helps to minimise negative impacts on the environment and human health, and ensures social well-being and economic stability (Pasaulio pulsas iš Lietuvos perspektyvos [World Pulse from a Lithuanian perspective] [LFPR], 2023).

Sustainability can be defined as a long-term approach to development that seeks to maintain natural ecosystems and their services to meet the needs of present and future generations (ARP, 2024). Sustainability is understood as a long-term process to achieve a sustained level of well-being and development that meets the needs of the present generation without harming future generations (AAI, 2025).

Climate change is one of the biggest environmental challenges of our time. It is linked to human activities, in particular emissions that cause the greenhouse effect (LFPR, 2023).

The energy sector is one of the main sources of greenhouse gases, so sustainable energy use is important for reducing the greenhouse effect and climate change (ARP, 2024). Sustainable energy use is one of the most important ways to reduce greenhouse gas emissions and climate change (ARP, 2024).

The implementation of sustainability and the success of the European Green Deal depend on the involvement and commitment of the public and all stakeholders (European Commission [EC], 2020).

The importance of sustainability relates to the goal of ensuring that humanity lives in a way that ensures long-term and sustainable development (ARP, 2024).

In the article "The future of electric cars: will electric transport become an integral part of urban mobility?" argues that sustainable mobility is driven by the need to diversify energy sources and create a zero-emission transport system for users (Verslas [Business], 2023).

The EU's sustainability policy is geared towards achieving its sustainability objectives: reducing climate change, improving energy efficiency, conserving natural resources, etc (ARP, 2024).

The EU is committed to reducing the dependence of its transport system on fossil fuels and to supporting alternatives to traditional combustion engine technologies and fuels (Europos aplinkos agentūra [European Environment Agency] [EAA], 2021).

To avoid dangerous climate change, greenhouse gas emissions must be reduced quickly and significantly. This will require a shift towards low-carbon electricity, transport, heat, industry, forestry and agriculture (Geels et al., 2017).

Transport accounts for a quarter of the EU's total greenhouse gas emissions and is still growing. To counteract the climate impact, transport emissions need to be reduced by 90% by 2050 (EC, 2020). Sustainable transport requires prioritising users and providing more affordable, accessible, healthier and cleaner alternatives to their current mobility patterns (EC, 2020).

The article "Electric cars: future transport trends and developments" highlights the growing awareness of sustainability in modern society, and the fact that car manufacturers are responding to these needs by offering a range of electric car models. Electric cars are not only more environmentally friendly due to their zero emissions, but they also offer drivers a new, seamless driving experience. Electric cars are seen as one of the most important solutions to reduce the environmental impact of the transport sector. They not only reduce air pollution in cities but can also contribute to

reducing greenhouse gas emissions (Verslas [Business], 2023).

As stated in the article "A sustainability revolution where electric cars and green energy are transforming our transport system", the popularity of electric cars is growing worldwide. Today, electric cars have become an integral part of the modern transport system (Auto naujienos apie viską [Auto News of Everything], 2024).

To be as resilient as possible to climate change and to minimise damage, we need clear objectives and the means to achieve them. This is the focus of the long-term policy strategy for managing climate change up to 2050 (LR Aplinkos Ministerija [Ministry of the Environment of the Republic of Lithuania] [LRAM], 2021).

According to the International Energy Agency (IEA), the total fleet of electric vehicles (excluding bicycles and three-wheelers) increased from almost 30 million in 2022 to around 240 million in 2030 under the policy scenario, with an average annual growth rate of around 30%. In this scenario, EVs will account for more than 10% of the road vehicle fleet in 2030. Total sales of EVs will reach more than 20 million in 2025 and more than 40 million in 2030, i.e. more than 20% and 30% of total vehicle sales respectively (International Energy Agency [IEA], 2023).

The transport system is currently undergoing major changes, which are closely linked to the development of electric vehicles and the inclusion of green energy. These processes are not only changing the type of vehicles, but are also shaping new trends in infrastructure, policy and consumer behaviour (Auto naujienos apie viską [Auto News of Everything], 2024).

In his books, Kotler often describes marketing as "the process by which organisations create value for their customers and secure long-term relationships that are mutually beneficial". This means that marketing is not just about selling products, but also about continuously understanding and satisfying consumer needs (Kotler & Keller, 2016).

In the future, according to Kotler's theories, marketing will become even more focused on consumer needs and experiences. Artificial intelligence, big data and automation technologies will allow companies to segment consumers even more accurately and create personalised marketing strategies. Kotler also stresses the responsibility for social and environmental impacts, as consumers

will increasingly value companies that demonstrate a responsible approach to these issues (Verslo idėjos [Business Ideas], 2025).

Society identifies the following characteristics that determine the speed of innovation: – comparative advantage, i.e. the degree to which the innovation is perceived as superior to the idea it replaces; – compatibility, i.e. the degree to which the innovation is perceived as being consistent with existing values, previous experience and the needs of potential adopters. (Rogers, 2003).

Consumer behaviour drives change. Both general attitudes and personality traits are related to human behaviour, but their influence can only be seen by looking at broad, aggregate, valid behavioural samples. Their influence on specific actions in specific situations is greatly weakened by other, more direct factors. Indeed, it can be argued that broad attitudes and personality traits influence specific behaviours only indirectly, by influencing certain factors that are more closely related to the behaviour in question (Ajzen, 1991).

Changing consumer attitudes are having an impact on the transport system. More and more people are opting for greener solutions, which encourages the market to adapt to new requirements (Auto naujienos apie viską [Auto News of Everything], 2024).

There are many possible pathways to achieving net-zero CO_2 emissions globally by 2050, and many uncertainties that could affect them (IEA, 2023).

In almost all countries, the use of EVs has been promoted in one way or another, but only in a small number of countries has it been successful in generating significant growth in sales (EAA, 2021).

In Lithuania, as in many other countries, governments are promoting the use of electric cars. They offer subsidies and tax breaks to reduce the cost of purchase. This makes electric cars more affordable for more people.

However, the integration of electric vehicles into the transport system faces challenges. Among the most important are the lack of infrastructure, the high cost of technology and the environmental aspects of EV production (Auto naujienos apie viską [Auto News of Everything], 2024). In order to increase consumer interest in EVs, the technology needs to be improved in several respects. For example, range and charging times need to be increased, and better infrastructure is needed (EAA, 2021).

The European Union is committed to making a significant impact on climate change. Energy and climate policy is a key priority for the EU, and the EU's target is to reduce greenhouse gas emissions by 2030 (ARP, 2024).

Statistical overview of the passenger car market in Lithuania 2021-2025

Transport is one of the largest contributors to climate change and the greenhouse effect, accounting for around 25% of carbon dioxide emissions globally and 32% in Lithuania. EU countries are committed to climate neutrality in the EU under the Paris Agreement (UNFCCC, 2025), with a target of 90% reduction in emissions from this sector compared to 1990 levels (EEA, 2024; EC, 2020).

According to Regitra (Regitra, 2021-2025), the fleet of registered passenger cars in Lithuania will grow from 1.609 million units in 2021 to 1.766 million units in 2025, or +9.72%. When analysing the number of passenger cars by main fuel types, the largest number of diesel cars registered in Lithuania grew from 1.095 million in 2021 to 1.152 million in 2025 (Figure 2.1).

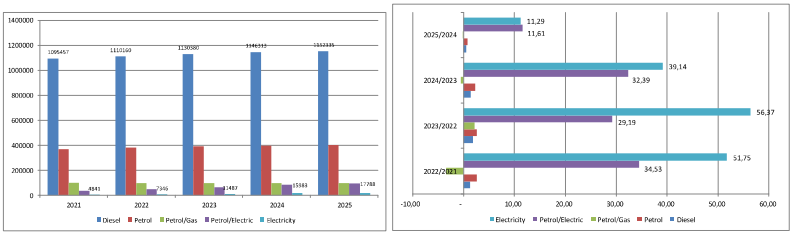


Figure 2.1 Dynamics of the number of cars by fuel type in Lithuania in 2021-2025, units and change, %

However, a comparison of the changes in the number of cars registered with different fuels (in percentage terms) shows that over the 5-year period, the most significant growth has been in the number of electric and hybrid cars, with the respective growth rates ranging from +11.29% in 2025 to +56.37% in 2023 year-on-year and from +11.61% to +34.53% in the various periods. Over the period 2021-2025, the number of EVs has increased by 267.44% (+12 947 units),

and the ratio of registered new and used EVs is approximately 35% and 65% over the whole analysis period.

Despite the growth in net EVs, the number of EVs is insufficient compared to the total number of registered cars, in response to Lithuania's ambition to renew its old fleet in the context of sustainable mobility, encouraging people to buy cleaner cars. The Ministry of Transport and Communications of the Republic of Lithuania (Susisiekimo ministerija, 2025) has approved a package of EU-Lithuanian financial instruments to encourage legal and natural persons to purchase an electric car. The RRF funds for the period 2023-2026 provide €35 million in compensation:

– €2,500 for the purchase of a used electric car,

– for the purchase of a new electric vehicle, a payment of €5000.

The Lithuanian Energy Agency also provides compensation for the installation of private charging points for electric vehicles.

Quantitative study

In order to find out the opinion of the Lithuanian population about the possibility of purchasing an electric car, a questionnaire survey was carried out using simple random sampling (Rupšienė, 2007), randomly interviewing the expected number of units of the general population (*n=1001*) to obtain general information. The survey was carried out in January-April 2025 by posting the questionnaire on social networks, on the website apklausa.lt, and by sending it through personal channels.

Table 2.1

Key sociographic data of respondents (*n=1001*)

Factor		Number	%		Number	%
Gender	Women	560	55,94	Men	411	44,06
Education	Higher university education	420	41,96	Higher non-university	403	40,23
Age	21-35	475	47,45	36-50	234	23,38
Revenue, EUR	1201-2000	409	40,86	801-1200	155	15,48
Place of residence	Metropoliten area >100 000	672	67,13	City 5 000-100 000	198	19,78

When asked what type of car they currently own, the answers were split – 41.01% own a diesel car, 33.16% a petrol car, 11.68%

do not currently own a car, 9.19% have a hybrid car and 3.2% have an electric car. If they were planning to buy a car at the moment, 30.27% would choose a hybrid, 34.47% a petrol, 14.69% a diesel, 9.89% an electric car, and around 10% would not.

People were asked to compare the characteristics of vehicles running on different fuels (Figure 2.2).

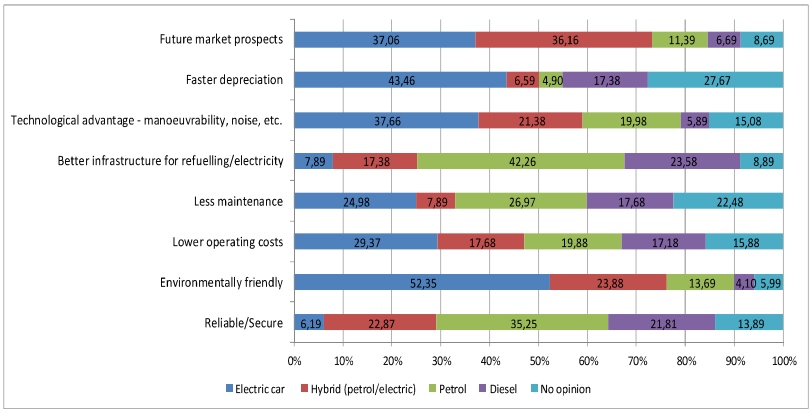


Figure 2.2 Respondents' perception of vehicle characteristics, % (*n=1001*)

52.35% of respondents chose an electric car and 23.88% a hybrid car as the most environmentally friendly. The lower running costs of these vehicles were acknowledged by 29.37% and 17.68% respectively and the higher technical advantage by 37.66% and 21.38%. A large proportion (37.06%) also agreed that it is a good future market prospect, as well as a hybrid car (36.16%) and a car with lower maintenance requirements (around 25%). However, a higher proportion of respondents said that the electric car depreciates faster compared to other fuel-powered cars (43.46%), and doubted its safety, with only 6.19% believing it is safe. It can be concluded that respondents acknowledge the qualities of EVs, such as sustainability and future prospects, but give priority to diesel and petrol cars, or have no opinion, because of reliability, maintenance costs, existing infrastructure and depreciation.

The most important factors in the purchase/decision to buy a car

are the price of the car and maintenance costs (58.64%), the cost of fuel/electricity (53.15%), and maintenance and repair options (50.95%) (Figure 2.3). Important factors include engine power (58.62%), cheaper insurance (37.06%), environmental impact (36.86%). Less important for the respondents are government support/subsidy (10.99%), car make and model (10.99%) and no importance at all for tax incentives (17.28%), support for charging station (29.27%), and benefits of extra lane (20.98%). It can be argued that, despite rising incomes, the population is interested in buying a cheaper car and is sensitive to fuel/electricity prices.

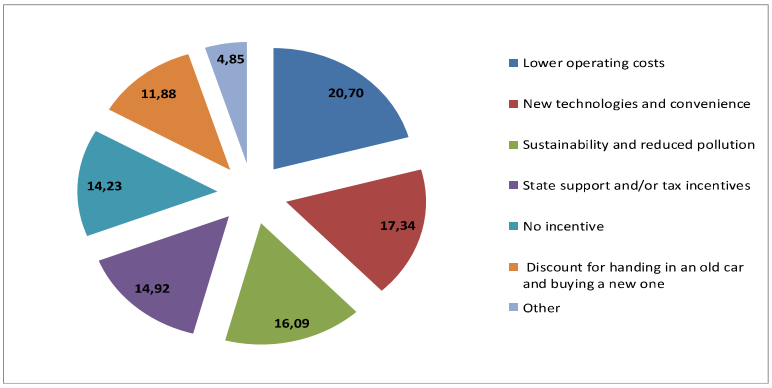


Figure 2.3 Respondents' opinion on the drivers for purchasing an electric car, % (*n=1001*)

High price (14.4%), limited charging sites/infrastructure network (14.31%), uncertain battery life, short range, long charging time were discouraged by the high price (14.4%) and around 13.5% said that the battery life was uncertain. Respondents gave additional reasons for this, such as cost, environmental friendliness, safety, disposal/recycling of used batteries.

Respondents were asked about the environmental impact of an electric car compared to conventional cars (Figure 2.4).

63% of them answered that they had a medium opinion, doubted the safety of production and batteries, 15% agreed that the impact is positive, reducing pollution and CO_2 emissions, 14% did not have enough information to answer this question, and gave as additional

answers an opinion on the impact of battery development/recycling and disposal on nature and the environment, denied climate change and did not see the need to buy an electric car as environmentally friendly, said it was a myth created on purpose, and wanted to stick to internal combustion engine cars.

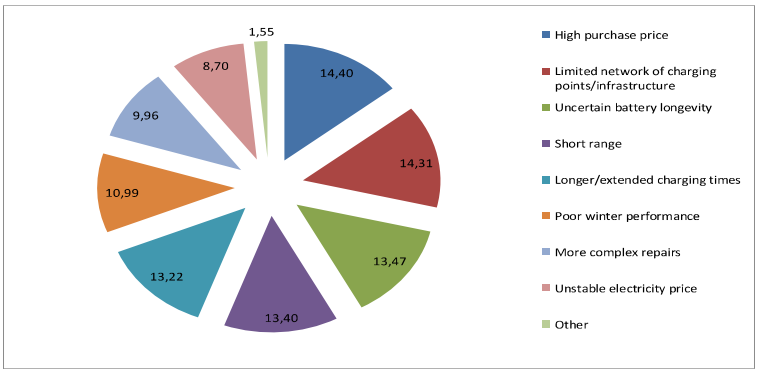


Figure 2.4 Respondents' opinion on the factors limiting the purchase of an electric car, % (*n=1001*)

13.99% of respondents identified the electric car as a promising future vehicle, while 57.84% agreed that it would depend on technological progress, and 23.78% agreed that there are better alternatives, such as hydrogen fuel in the future.

The price of a new electric car in Lithuania ranges from €24,000 to €40,000 or more, depending on the configuration, so not everyone can afford a new one (VTA, 2005). Used EVs, which average around €23,000 in Europe (LRT, 2025), often have maintenance problems, high mileage and expiring batteries. The final price of a second-hand EV also depends on local factors such as registration fees, transport costs, market demand, the number of importers on the market and their performance. It is therefore not surprising that some of the population cannot afford a more expensive car, especially as bank loan/leasing conditions have tightened since Covid-19, interest rates have risen and public support for purchases is no longer a major influence.

43.26% of respondents would be willing to pay between €20,000

and €35,000 for an electric car, while 34.67% would pay up to €20,000. In response to an open question on what could encourage the purchase of an electric car, respondents indicated that the price could be even lower (around €10,000 to €12,000) or that no one would encourage or intend to purchase one.

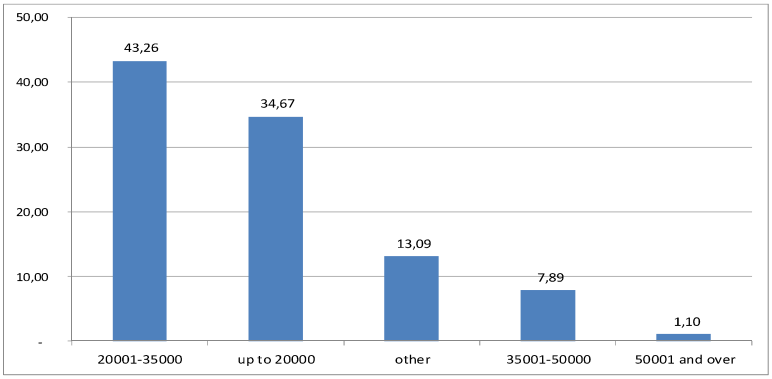


Figure 2.5 Respondents' opinion on the price of an electric car, % (*n=1001*)

The most important reasons limiting the purchase of electric cars in Lithuania can be identified:

– insufficient public policy;
– a market focused on the purchase of used cars;
– limited range;
– underdeveloped infrastructure;
– high cost;
– fears and uncertainty.

The target for growth in the number of electric vehicles at national level is to reach at least 10% of the total vehicle fleet by 2025 (not met) and 40% by 2030. Lithuania is lagging far behind European countries in terms of the number of electric vehicles (~1.8% of the total fleet), with Norway at 24.1%, the UK at 11%, and Denmark at 7.1% of the total passenger car fleet (ACEA, 2025).

Conclusions

Taking into account the European documents related to sustainability and the significance of the transport sector in the

context of climate change, we analyse the factors influencing the decisions of Lithuanian consumers to purchase an electric vehicle, highlighting the interplay between sustainability motives and the practicalities of choice.

The theoretical framework of the study is based on the concepts of sustainability, consumer behaviour (Ajzen) and the relevance of innovation (Rogers), allowing for a comprehensive assessment of consumer attitudes and decision-making factors.

The empirical data was collected through a quantitative survey focusing on the Lithuanian population likely to purchase a vehicle and interested in sustainability issues.

The results show that while consumer awareness and sustainability aspirations are important, practical factors such as high acquisition costs, lack of infrastructure and inertia of habits tend to drive real decisions.

References:

1. *ACEA. Driving mobility in Europe (2025). New cars registrations: -1,2 % in April 2025 year-to-date; battery-electric 15,3 % market share. https://www.acea.auto/*
2. *Ajzen, I. (199). The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes, 50(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T*
3. *Aplinkos apsaugos institutas. (n.d.). Tvarumo sąvoka. https://aai.lt/tvarumo-savoka/*
4. *Aplinkos ryšio projektai (2024, vasario 24.). Tvarumo tikslai ir siekiai pasaulyje: svarba ir įgyvendinimo būdai. https://arp.lt/tvarumo-tikslai-ir-siekiai-pasaulyje-svarba-ir-igyvendinimo-budai/*
5. *Auto naujienos apie viską (2024, spalio 12.). Tvarumo revoliucija, kurioje elektromobiliai ir žalia energija keičia mūsų transporto sistemą. https://www.auto-bild.lt/tvarumo-revoliucija-kurioje-elektromobiliai-ir-zalia-energija-keicia-musu-transporto-sistema/*
6. *Elektromobilių ateitis: ar elektra varomas transportas taps neatsiejama judumo miestuose dalimi? 15 min.lt. https://www.15min.lt/verslas/naujiena/autorinka/elektromobiliu-ateitis-ar-elektrra-varoas-transportas-taps-neatsiejama-judumo-miestuose-dalimi-1636-2144652?utm_medium=copied*
7. *Europos aplinkos agentūra (2021). Elektromobiliai. Tvarių judumo sistemų kūrimas. https://www.eea.europa.eu/lt/articles/elektromobiliai-tvariu-judumo-sistemu-kurimas*
8. *Europos aplinkos agentūra (2024). Greenhouse gas emissions from*

transport in Europe. https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emissions-from-transport

9. *European Commission (2020). A European Green Deal. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en/, https://eur-lex.europa.eu/legal-content/LT/TXT/?uri=COM%3A2019%3A640%3AFIN*
10. *Geels, F.W., Sovacool, B.K., Schwanen T. (2017). Sociotechnical transitions for deep decarbonization. Science, 357963570, 1242-1244. https://www.science.org/doi/10.1126/science.aao3760*
11. *International Energy Agency (IEA) (2023). Global EV Outlook 2023. https://www.iea.org/reports/global-ev-outlook-2023*
12. *Kotler, P., & Keller, K.L. (2016). Marketing Management. (15th ed.). Pearson*
13. *LR Susisiekimo ministerija (2025). Elektromobilių naudojimą skatinančios priemonės. https://sumin.lrv.lt/lt/veiklos-sritys/darnus-judumas/elektromobilumas/elektromobiliu-naudojima-skatinancios-priemones/*
14. *Lietuvos radijas ir televizija (LRT) (2005). Naudoti elektromobiliai Europoje pinga: ar kainų kritimas pasieks ir Lietuvą? https://www.lrt.lt/naujienos/eismas/7/2528183/naudoti-elektromobiliai-europoje-pinga-ar-kainu-kritimas-pasieks-ir-lietuva?srsltid=AfmBOoreQ-7N6DsgdR9xHxW1baI_m1O2UGjkH-WjQ5lnK5cRl3SrEH94*
15. *Regitra.lt. Atviri duomenys (2021-2025 m.). https://www.regitra.lt/lt/atviri-duomenys?datayear=2021&dataquery=*
16. *Rupšienė L. (2007). Kokybinio tyrimo duomenų rinkimo metodologija. Klaipėdos universitetas*
17. *Verslas. Lietuvos Auto. (2023, gruodžio 22.). Elektromobiliai: ateities transporto tendencijos ir pokyčiai. https://www.auto.lt/straipsniai/Elektromobiliai-ateities-transporto-tendencijos-ir-poky%C4%8Diai/19168*
18. *Lietuvos Respublikos aplinkos ministerija (2021). „CAS 2021“ visą pasaulį ragina susivienyti prisitaikant prie klimato kaitos. https://am.lrv.lt/lt/naujienos/cas-2021-visa-pasauli-ragina-susivienyti-prisitaikant-prie-klimato-kaitos/*
19. *Lietuvos techninės apžiūros įmonių asociacija. (VTA) (2025). Elektromobilių palyginimas: kurių geriausias kainos ir kokybės santykis? https://www.vta.lt/elektromobiliu-palyginimas-kuriu-geriausias-kainos-ir-kokybes-santykis/*
20. *Rogers, E.M. (2003). Diffusion of Innovations. Simon and Schuster.*
21. *Tvarumo svarba: Kodėl tai yra svarbu ir kaip tai gali paveikti mūsų*

ateitį (2023). Pasaulio pulsas iš Lietuvos perspektyvos/ LFPR. https://lfpr.lt/tvarumo-svarba-kodel-tai-yra-svarbu-ir-kaip-tai-gali-paveikti-musu-ateiti/

22. *United Nations Climate Change (UNFCCC). The Paris Agreement. https://unfccc.int/process-and-meetings/the-paris-agreement*
23. *Verslo idėjos. (2025, vasario 18.). Paslaugų marketingas pdf: svarba ir nauda jūsų verslui. https://versloidejos.lt/straipsniai/paslaugu-marketingas-pdf-svarba-ir-nauda-jusu-verslui/*

Olena Chukurna
ORCID: https://orcid.org/0000-0001-9285-7068
Doctor of Economics, Professor
State University of Intellectual Technologies and Communications
Evgene Kholostenko
ORCID: https://orcid.org/0009-0005-9970-9611
Higher Education Applicant of the Third (Educational and Scientific) Level of Higher Education of 051 "Economic"
State University of Intellectual Technologies and Communications
Ihor Martsinenko
ORCID: https://orcid.org/0009-0003-9210-3006
Higher Education Applicant of the Third (Educational and Scientific) Level of Higher Education of 051 "Economic"
State University of Intellectual Technologies and Communications
Yelyzaveta Chukurna
ORCID: https://orcid.org/0009-0002-0116-5635
Student of Specialty 191 "Architecture and Urban Planning"
Odesa State Academy of Civil Engineering and Architecture (Odesa, Ukraine)

INNOVATIVE MARKETING COMMUNICATIONS MODEL IN THE CONTEXT OF DIGITAL ENSURANCE OF SUSTAINABLE DEVELOPMENT

https://doi.org/10.5281/zenodo.15707800

Abstract
The article is devoted to the characteristics of innovative models of marketing communications used in the context of digital sustainable development. The main types of marketing communications models and AI algorithms that regulate their work are considered. Particular attention is paid to the analysis of the transparency of the work of AI

algorithms in the Google Ads advertising service. The authors consider the features of the implementation of AI and assess its impact on the effectiveness of the Google Ads advertising service. A model of alternative assessment of the effectiveness of an advertising campaign using AI algorithms is proposed using the example of the Google Ads advertising service.

Keywords: *marketing communication models, digitalization, sustainable.*

Introduction

The development of digitalization and the information society has contributed to the formation of innovative models of marketing communications. Technological changes and the introduction of digital tools are occurring against the backdrop of ensuring the achievement of sustainable development goals. Nowadays, the transformation of communication models and strategies in society is so significant that classical models no longer yield the same results as before, and analog channels are not always as effective. The era of the information age and digitalization is emerging, which is reflected in the following aspects and processes related to the development of marketing communication models:

— *Formation of new promotion channels.* With the development of internet technologies, new promotion and communication channels with users are emerging, such as search engines, social networks, video hosting services, and affiliate networks, which are more digitized, transparent, and effective than traditional analog channels like radio, television, and outdoor advertising.

— *Multichannel communication.* Transition from using classic marketing communication models to mixed multichannel models. This direction allows consumers free access to product information and interaction with different channels.

— *Data orientation and the emergence of detailed consumer data.* Internet technologies have enabled extensive data collection on users and their behavior, allowing for a more accurate modeling of the target audience profile and marketing planning.

— *The emergence of significant informational "noise".* Various enterprises started using the same communication channels, leading to an overload of information for users, making decision-making

more complex and increasing companies' dependence on advertising volume and marketing expenses.

— *Involvement of artificial intelligence in managing marketing communications.* The presence of fierce competition, the emergence of big data, and the use of various channels have created demand for the systematization of promotion processes. The solution to this problem has been artificial intelligence, which has been actively implemented in advertising systems such as Google and Meta.

Ensuring sustainable development requires businesses to use modern and innovative marketing communication models that meet the requirements of digitalization and the implementation of digital tools.

Materials and Methods

The methodological basis of the study is a set of general philosophical and special methods, principles and techniques, the main methodological approaches (systemic, process, situational). General scientific methods: analysis and synthesis – to determine the impact of the formation of innovative models of marketing communications on business communications strategies in the context of digitalization to achieve sustainable development goals; methods of theoretical generalization – to group marketing communications models in the context of digitalization; statistical analysis – to determine the impact of artificial intelligence technologies on the formation of innovative models of marketing communications.

Results

Modern Marketing Communication Models. Marketing concepts today operate with the following models of marketing communications that are used in practice:

1. AIDA Model: This model consists of four stages: Attention, Interest, Desire, and Action. It outlines the sequential process that a consumer undergoes from perceiving a product or service message to making a purchase.

2. DAGMAR Model: Stands for "Defining Advertising Goals for Measured Advertising Results". It emphasizes that marketing communications should have specific, measurable, and evaluable

goals.

3. Expanded Marketing Mix Model: This model includes a broader range of marketing tools, encompassing not only traditional advertising, PR, and direct marketing but also content marketing, sponsorship, public relations, and others.

4. Integrated Marketing Communications Model: Highlights the importance of coordinating all elements of marketing communications to ensure consistency and uniformity in audience perception.

5. Extended Customer Lifetime Value (eLTV) Model: Focuses on relationships with customers throughout their lifecycle, incorporating various communication strategies for engagement, retention, and increasing customer value for the company.

6. 7C Communication Model: Expands the classic 4C marketing communication model (Consumer, Cost, Convenience, Communication) to include Context, Content, and Feedback (Kotler et al., 2016).

7. RACE (Reach, Act, Convert, Engage) Model: Describes customer journey stages from awareness to conversion, including research, evaluation, decision-making, and stimulation.

8. Feedback Loop Model: Emphasizes the importance of collecting and analyzing customer feedback to adapt and improve marketing strategies.

9. Interactive Marketing Communications Model: Reflects brand-consumer interaction through active participation and engagement in both online and offline environments.

10. Social Media Marketing Communication Model: Focuses on leveraging social media to engage with the target audience and foster a positive brand image (Chukurna et al., 2024a).

11. Viral Marketing Model: Examines the spread of information through contact networks and viral mechanisms to effectively distribute marketing messages.

12. User Engagement Model: Reflects strategies and tools for engaging and interacting with users to create deeper connections and influence.

In this study, we will focus on the peculiarities of implementing artificial intelligence (AI) in the Google Ads advertising service. Today, Google Ads is highly sophisticated and features complex

mathematical tools, complemented by the capabilities of Google Analytics. This synergy allows for data validation models and more accurate insights.

Google developers and business management representatives have created highly efficient AI algorithms for Google Ads, designed to collect conversion data and encourage advertisers. However, AI-based algorithms do not always achieve desired advertising campaign performance indicators, increasing the need to assess these algorithms by comparing AI-driven and standard methods.

Key aspects of AI use in Google Ads:

— *Data Collection and Consolidation:* Google Ads relies on data as the foundation for AI-driven decision-making.

— *Machine Learning:* Google Ads employs machine learning to predict which advertising strategies will be most effective under certain conditions, allowing for automatic campaign adjustments for better results.

— *Enhancing Ad Relevance:* AI analyzes past data and user behavior to improve ad relevance. Algorithms consider interests, previous interactions, and context for content optimization.

— *Dynamic Ads:* Google Ads uses AI to create dynamic ads that automatically adapt to website content and user interests, maintaining ad relevance.

— *Budget and Campaign Optimization:* AI algorithms help allocate advertising budgets efficiently by analyzing resource effectiveness and redistributing funds for maximum impact.

The proposed model for alternative evaluation of advertising campaign effectiveness in Google Ads is based on attribution models and cross-channel analytics.

Key elements of this model:

— *Attribution Models for Conversion Accounting:* Algorithms that track user actions from first interaction to conversion, assigning value to different channels.

— *Role of Additional Services like Google Analytics and Looker Studio:* These services provide comprehensive data and statistics to enhance evaluation accuracy.

— *Cross-Channel Analytics Reports:* Provide a holistic view of all channel performance by integrating data from multiple sources.

Types of conversion attribution models:

— *Last-Click Attribution:* Assigns 100% value to the last interaction channel.

— *Last Non-Direct Click Attribution:* Attributes the conversion to the penultimate interaction channel.

— *Last Google Ads Click Attribution:* Assigns 100% value to the last Google Ads click.

— *First-Click Attribution:* Attributes conversion to the first channel introducing the customer to the website.

— *Linear Attribution:* Distributes value evenly among all channels involved in the customer journey.

— *Time-Decay Attribution:* Distributes value progressively from the first to the last interaction, giving more weight to recent interactions.

— *Position-Based Attribution:* Assigns 40% value to both the first and last interaction channels, with the remaining value distributed among intermediate channels.

Data-Driven Attribution: Uses statistical data to assign conversion value based on actual interaction impact.

The data-driven attribution model is specifically recommended by Google developers for the efficient functioning of artificial intelligence algorithms. They believe that this model allows algorithms to collect data on the effectiveness of each channel rather than just one, distributing a single conversion among multiple channels. This approach may obscure the true effectiveness of each individual channel.

The next component of the proposed model includes additional services such as Google Analytics and Looker Studio. These digital services essential for analyzing external data, specifically:

Google Analytics – collects data using the Last Click attribution model, which helps interpret Google Ads conversions.

Looker Studio – serves as an infrastructure for creating a basic multichannel analytical report, enabling the visualization of transitions for each advertising campaign (Chukurna et al., 2024b).

By using these services, we will build a basic cross-channel are analytics model that distributes all conversions across all advertising campaigns. This will allow us to obtain not only the number of conversions per campaign but also specific target actions for each campaign using the Last Click conversion attribution model. This, in

turn, will enable us to analyze the conversions achieved through AI-driven processes utilizing the Data-Driven attribution model.

The proposed approach can be referred to as a basic cross-channel analytical model. It is an analytical framework that links a user's first interaction with their final action associated with financial outcomes.

Let's consider an example of implementing this model based on the evaluation of artificial intelligence effectiveness in Google Ads campaigns. We will present a basic model that deciphers primary conversions into target business actions.

To summarize, our study on AI effectiveness in Google Ads campaigns consists of building a basic cross-channel analytics model in several stages (Chukurna et al., 2024b):

— Collecting and analyzing performance data from the Google Ads account and generating a report.

— Consolidating advertising campaign performance data in Google Analytics using the Last Click attribution model.

— Creating a basic cross-channel analytics report in Looker Studio.

— Drawing conclusions based on actual AI-driven performance data.

We will analyze an account where only AI-powered campaigns are active and assess their effectiveness. The focus area is an online store specializing in construction materials. The results of this model and the analytical indicators from the selected example are presented in Table 2.2. We will create a basic end-to-end analytics report in Looker Studio, synchronizing Google Ads and Google Analytics data. As a result, for each advertising campaign, we will have both ad-driven conversions and actual actions recorded through the Last Click attribution model (Table 2.2 and Table 2.3).

As a result, we get a summary Table 2.2, which presents the following data: the effectiveness of advertising campaigns from the Google Ads dashboard; the effectiveness of advertising campaigns from Google Analytics using the "last click" attribution model; calculated data (Table 2.3).

Based on the data obtained, the following indicators were calculated (Chukurna et al., 2024b).

Actual conversions according to Google Analytics. The total number of actual conversions according to Google Analytics is the

sum of conversions for important events that are registered as conversions in Google Ads.

Table 2.2

Consolidated report in Google Ads

	Data from Google Ads						
Campaign	Clicks	Showings	CTR	CPC	Costs	Conversions	Conversion cost (CC)
Smart_All_Performanc e_Max	6153	370674	0,0166	1,75	10743,16	109,9	97,75
PMax_ Sealant _KYIV_UA_k	261	19097	0,0137	6,65	1735,93	2	867,96
PMax_ Plasterboard _KYIV_k	840	47616	0,0176	7,64	6416,94	20	320,85
PMax_ Primer _KYIV_k	327	23017	0,0142	5,25	1717,84	1	1717,84
PMax_ Glue _KYIV	2398	124536	0,0193	2,68	6436,29	23,85	269,86
PMax_ Paints_Varnishes _KYIV_UA_k	265	20304	0,0131	6,38	1691,37	2	845,69
PMax_ Minwata _KYIV_k	1037	47680	0,0217	6,18	6408,75	14,51	441,53
PMax_ Styrofoam _KYIV_k	1557	73137	0,0213	4,11	6404,26	34,99	183,04
PMax_ Styrofoam _KYIV_UA_k	1386	66259	0,0209	4,64	6430,94	12,99	495,21
PMax_ Profile _KYIV_k	1624	95430	0,017	3,99	6477,69	14,5	446,74
PMax_ Ceiling _KYIV	2777	225185	0,0123	7,76	21541,26	49,56	434,63
PMax_ Ceiling _UA	3556	284424	0,0125	5,12	18211,68	31,71	574,37
PMax_ Strainer _KYIV_UA_k	306	19863	0,0154	5,64	1727,11	6	287,85
PMax_ Cement, crushed stone, sand _KYIV_k	715	48163	0,0148	9,12	6519,75	16,5	395,14
Pmax_ Putties _KYIV_k	1786	104216	0,0171	4,4	7857,5	22,73	345,72
PMax_ Plaster _KYIV	1273	89160	0,0143	5,07	6449,41	19	339,44
PMax_OSB_KYIV_k	1729	80213	0,0216	3,73	6441,79	22,99	280,15
Sales-Performance Max-1_k	1836	64288	0,0286	7	12858,85	72,82	176,58
Total	29826	1803262	0,0165	4,56	136070,5	477,06	285,23

Percentage deviation in conversion data. This percentage shows the difference between the number of conversions recorded by Google Ads and the actual conversions recorded by Google Analytics. A positive value indicates an overstatement of Google

Ads reporting, while a negative value indicates an understate.

Table 2.3

Consolidated report in Google Analytics

	Data from Google Analytics					Calculated data			
Campaign	Event number	Event number	The value of events	Event number	Event number	Total number of real conversions	Deviation of real conversions, %	Actual conversion cost	Conversion cost variance, %
Smart_All_Performance_Max	28	42	23780.52	12	13	95	15,68	113,09	-13,56
PMax_ Sealant _KYIV_UA_k	0	2	460	0	0	2	0,00	867,97	0,00
PMax_ Plasterboard _KYIV_k	11	2	687.72	2	4	19	5,26	337,73	-5,00
PMax_ Primer _KYIV_k	1	0	0	0	0	1	0,00	1 717,84	0,00
PMax_ Glue _KYIV	4	4	1698.66	8	2	18	32,50	357,57	-24,53
PMax_ Paints_Varnishes _KYIV_UA_k	0	1	424.92	0	1	2	0,00	845,69	0,00
PMax_ Minwata _KYIV_k	6	3	2073.72	2	0	11	31,91	582,61	-24,22
PMax_ Styrofoam _KYIV_k	11	9	45688.2	7	8	35	-0,03	182,98	0,03
PMax_ Styrofoam _KYIV_UA_k	3	3	11294.46	7	0	13	-0,08	494,69	0,11
PMax_ Profile _KYIV_k	11	1	23.52	1	0	13	11,54	498,28	-10,34
PMax_ Ceiling _KYIV	15	9	14780.58	12	11	47	5,45	458,32	-5,17
PMax_Ceiling _UA	12	4	18991.38	9	7	32	-0,91	569,12	0,92
PMax_ Strainer _KYIV_UA_k	5	1	278.52	0	0	6	0,00	287,85	0,00
PMax_ Cement, crushed stone, sand _KYIV_k	1	5	1664.46	6	2	14	17,86	465,70	-15,15
Pmax_ Putties _KYIV_k	10	5	16066.2	6	1	22	3,32	357,16	-3,20
PMax_ Plaster _KYIV	5	7	32401.3	2	1	15	26,67	429,96	-21,05
PMax_OSB_KYIV_ k	10	0	0	4	3	17	35,24	378,93	-26,07
Sales-Performance Max-1_k	38	3	1721.14	16	15	72	1,14	178,60	-1,13
Total	172	101	172035.3	94	68	435	9,67	312,81	-8,82

Based on the data obtained, conclusions were drawn about the quality of artificial intelligence in Google Ads and the directions for further work with it.

The generated reports allow us to draw the following conclusions about the discrepancies between Google Ads and Google Analytics data:

— there is a serious discrepancy in conversions – Google Ads reports 477.06 conversions, and Google Analytics – 435. This is a relative discrepancy of 10%, and in the case of individual campaigns this discrepancy can reach 35%, which is significant.

— there is a serious discrepancy in the cost per conversion – Google Ads reports 285.23 USD, and Google Analytics – 313 USD.

The percentage deviation in conversion data between Google Ads and Google Analytics is calculated using the formula (2.1):

$$\text{Deviation}\,(\%) = \frac{\text{Conversions (Google Ads)} - \text{Conversions (Google Analytics)}}{\text{Conversions (Google Analytics)}} \times 100\% \quad (2.1)$$

Based on the obtained data, conclusions were drawn regarding the accuracy of artificial intelligence (AI) in Google Ads and potential areas for further improvement.

The generated reports highlight the following discrepancies between Google Ads and Google Analytics data:

– Significant conversion discrepancies: Google Ads reports 477.06 conversions, whereas Google Analytics records 435, resulting in a 10% deviation. In some cases, this discrepancy can reach 35%, which is considerable.

– Cost-per-conversion discrepancies: Google Ads reports a cost per conversion of $285.23, while Google Analytics records $313, showing a 9% deviation. In certain campaigns, this difference can reach 26%, which is also significant.

Given that the average profit margin for shopping campaigns can range from 5% to 20%, deviations of up to 35% in actual data pose substantial financial risks for businesses.

The integration of AI-driven technologies into marketing and advertising raises concerns about the reliability of performance assessments and campaign effectiveness measurements. The

selection of appropriate metrics for evaluating AI-driven campaigns remains a subject of discussion, as do the discrepancies in reported performance data. Additionally, budget allocation for AI-driven ad campaigns presents challenges. Businesses face potential risks when relying entirely on AI for managing ad campaigns and budgets.

Discussion

The use of artificial intelligence (AI) technologies in marketing and marketing communication models is a relatively new area of research. Numerous foreign and Ukrainian scholars have studied the challenges of AI implementation and its effectiveness in marketing, exploring both theoretical and practical aspects of AI integration into marketing communication models.

For example, F. Kotler (Kotler et al., 2016) examines emerging trends and digital marketing technologies, particularly the impact of digital transformation and AI on corporate marketing strategies. J. Sterne (Sterne, 2017) provides practical advice and examples of AI applications in marketing, analyzing specific ways intelligent systems can be used to solve various marketing-related tasks. A. Pradip (Pradeep et al., 2019) explores AI's role in marketing, with a focus on trend forecasting, customer communication models, and sales strategies.

Ukrainian researchers are also actively studying marketing strategies, including those based on AI capabilities. For instance, O. Oklander and O. Chukurna (Oklander et al., 2020) propose a methodological approach to incorporating informational components in pricing goods and services that rely on AI. They also highlight AI's potential for future development and discuss challenges in pricing products and services based on AI-driven technological and informational components.

T. Nestorenko and O. Nestorenko (Nestorenko et al., 2022) analyze AI as a key factor in optimizing production decisions under resource constraints and shifting societal priorities.

H. Androshchuk's research (Androshchuk, 2019) focuses on AI technology development trends, while O. Skytsko (Skitsko et al., 2023) systematizes AI-related threats and risks. V. Batareyev (Batareiev, 2021), M. Utkina, and N. Shcherbak (Utkina & Shcherbak, 2021) explore theoretical and methodological approaches

to defining AI.

This study emphasizes innovative marketing models that have emerged in the digitalization era, contributing to sustainable development.

Conclusions

This study analyzed marketing communication models and evaluated the effectiveness of AI in Google Ads campaigns. Theoretical and practical research has led to the following conclusions:

AI algorithms use unique performance assessment formulas that differ from traditional evaluation methods.

Initial performance indicators often vary from AI-reported results, with final discrepancies reaching up to 10% on average and as high as 35% in some campaigns. This raises concerns about the accuracy of AI in Google Ads campaigns.

Relying solely on AI-generated performance metrics increases financial risks for businesses, as miscalculations can reach up to 35%.

Further research is needed to refine AI-driven attribution models and reduce discrepancies in performance reporting.

References:

1. *Kotler, P., Kartajaya, H., & Setiawan, I. (2016). Marketing 4.0: Moving from Traditional to Digital (1st ed.). John Wiley & Sons, Inc.*
2. *Chukurna O., Tardaskina T., Alkhimova V., Kofman V., Pankovets L. (2024a). Use of Artificial Intelligence in the Formation of the Marketing Strategy of the Enterprise. In: Karabegovic, I., Kovačević, A., Mandzuka, S. (eds) New Technologies, Development and Application VII. NT 2024. Lecture Notes in Networks and Systems, vol 1070. Springer, Cham https://doi.org/10.1007/978-3-031-66271-3_42*
3. *Chukurna, Olena; Tardaskina, Tetiana; Tereshko, Yuliia; Kholostenko, Evgene; Kofman, Viktoria & Pankovets, Leonid (2024b). Evaluation of the effectiveness of implementing artificial intelligence in the Google Advertising service. Journal of Information Technology Management, 16 (4), 79-99. https://doi.org/10.22059/jitm.2024.99052*

4. *Sterne, J. (2017). Artificial Intelligence for Marketing: Practical Applications. John Wiley & Sons, Inc.*
5. *Pradeep, A. K., Appel, A., & Sthanunathan, S. (2019). AI for Marketing and Product Innovation: Powerful New Tools for Predicting Trends, Connecting with Customers, and Closing Sales. Wiley.*
6. *Oklander, M., Chukurna, O., Oklander, T., & Yashkina, O. (2020). Methodical principles to calculation information value in pricing policy in supply chains. Estudios de Economía Aplicada, 38(3), 1. http://ojs.ual.es/ojs/index.php/eea/article/view/4009/4263*
7. *Nestorenko, T., Nestorenko, O., Morkūnas, M., Volkov, A., Baležentis, T., & Štreimikienė, D. (2022). Optimization of Production Decisions under Resource Constraints and Community Priorities. Journal of Global Information Management, 30(12), 1-24. https://doi.org/10.4018/JGIM.304066*
8. *Androshchuk, H. O. (2019). Tendencies in the Development of Artificial Intelligence Technologies: Economic and Legal Aspects. Teoriia i praktyka intelektualnoi vlasnosti, (3), 84-101.*
9. *Skitsko, O., Skladannyi, P., Shirshov, R., Humeniuk, M., & Vorokhob, M. (2023). Threats and Risks of Artificial Intelligence Usage. Cybersecurity: Education, Science, Technique, 2(22), 6–18.*
10. *Batareiev, V. V. (2021). Methods and Systems of Artificial Intelligence. Visnyk of Khmelnytskyi National University, 1(293), 17–21.*
11. *Utkina, M. S., & Shcherbak, N. M. (2021). Theoretical and Methodological Approaches to the Definition of Artificial Intelligence. Legal Scientific Electronic Journal, (2), 214–217*
12. *Korinek, A., & Stiglitz, J. E. (2017). Artificial Intelligence, Worker-Replacing Technological Change, and Income Distribution (Working Paper No. 28453). National Bureau of Economic Research. https://www.nber.org/system/files/working_papers/w24174/w24174.pdf*
13. *Cabinet of Ministers of Ukraine. (2020, December 20). On the approval of the Concept for the Development of Artificial Intelligence in Ukraine (No. 1556-r).*
14. *Government Portal. (2023, October 7). Regulation of Artificial Intelligence in Ukraine: MinCIFRA presented a roadmap. https://www.kmu.gov.ua/news/rehuliuvannia-shtuchnoho-intelektu-v-ukraini-mintsyfry-prezentuvalo-dorozhniu-kartu*

Janina Čižikienė
ORCID: https://orcid.org/0000-0002-5590-5398
PhD in Management
Kaunas University of Technology (Kaunas, Lithuania)

THE ROLE OF SOCIAL CAPITAL IN DEVELOPING SOCIAL INNOVATIONS IN SOCIAL SERVICE ORGANIZATIONS

https://doi.org/10.5281/zenodo.15707822

Abstract
The article examines the importance of social capital in fostering social innovations within organizations that deliver social services. Social capital, based on mutual trust and collaborative networks, can foster the creation and implementation of innovative solutions. The study examines how the internal and external elements of social capital within organizations influence the processes of introducing social innovations. Based on data from qualitative interviews with employees of social service organizations, it was found that strong social capital enhances the ability of organizations to respond to changing societal needs, involves stakeholders in decision-making, and facilitates the creation of innovations within organizations. The article's conclusions highlight the need to deliberately nurture trust-based relationships in order to strengthen the impact and innovativeness of social services.

Keywords: *social capital, social innovations, social services, collaboration, trust.*

Introduction

Organizations that provide social services are increasingly facing societal challenges related to changing needs, limited resources, and growing demands for service quality (Payne, Askeland, 2016; Omellas et al., 2018; Čižikienė, 2020). Consequently, these organizations are placing greater emphasis on the development of social innovations, as new solutions emerge to address complex social problems and improve the accessibility, efficiency, and inclusiveness of social services. Organizations engaged in social innovation development encounter challenges that require not only creativity but also strong internal and external resources (Voegtlin et al., 2022; Čižikienė, 2024). One factor considered crucial for the

successful creation and expansion of social innovations is social capital – social networks based on trust, collaboration, and shared normative ties (Putnam, 2004; Bourdieu, 1986; Coleman, 1988, Salajegheh, Pirmoradi, 2013; Western, Huang; 2024; Bebbington, Foo, 2024). In academic literature, social capital is regarded as one of the key factors that determine an organization's ability to adapt to changing conditions, make innovative decisions, and enhance service quality (Felício et al., 2014; Aman-Ullah et al., 2022). However, in practice, there is still a lack of clear insights on how social capital specifically influences the implementation of innovations in the social services sector, where organizations often rely on human resources, community participation, and horizontal networks.

The article raises the problem of *how social capital contributes to the creation and implementation of social innovations in organizations that provide social services.* In response to this question, the aim is to reveal how internal and external social capital resources influence the emergence of innovative solutions and what conditions facilitate or hinder this process.

The article aims to examine the significance of social capital in the development of social innovations within social service organizations.

To achieve this aim, the following objectives are set:

1. To define the concepts of social capital and social innovation and their theoretical interrelation.
2. To reveal how social capital resources manifest in the activities of social service organizations.
3. To analyze the impact of social capital on the development of innovative solutions in organizations providing social services.

The article is based on data from a qualitative study conducted with representatives of organizations operating in the social services sector and draws on theoretical approaches to social capital and social innovations.

The Relationship Between Social Capital and Social Innovation in Organizational Development

Organizations' ability to adapt to ever-changing societal needs and structural transformations is increasingly linked to their capacity to manage both internal and external resources (Muscalu et al., 2016;

Damanpour et al., 2018; Čižikienė, 2024). Among these resources, social capital and social innovations hold particular significance, as their interaction creates a synergistic effect that becomes especially important for organizations operating in the social services sector (Bhatt, Altinay, 2014).

Social capital, as a structurally and normatively integrated resource, encompasses social ties, trust, shared norms, and social networks that enable more effective coordination of activities and mobilization of community actions (Coleman, 1988; Putnam, 2004). Within organizations, it manifests at two levels: internally, through relationships among organizational members, a sense of community, and identity; and externally, through collaboration with other institutions, partners, and communities (Jamali et al., 2011; Thompson, 2018). Social capital not only facilitates the exchange of knowledge and information but also reduces the costs of collaboration, promotes trust, and fosters collective commitment. It is important to highlight two key dimensions of social capital: structural and cognitive. The structural dimension encompasses formal relationships, network memberships, and partnerships, while the cognitive dimension is related to shared values, common attitudes, and trust (Vasiliauskaitė, 2007; Pérez-Macías et al., 2021). Both dimensions are essential for organizations to mobilize resources, respond to external changes, and initiate transformative solutions (Vasiliauskaitė, 2007; Salajegheh, Pirmoradi, 2013). This is especially true in the field of social services, where activities are based on human connection, empathy, and inclusion—making social capital a critical resource that determines both the quality of services and the success of implementing innovations.

Social innovations are defined as new or significantly improved solutions, processes, or forms of services that respond to societal needs, reduce social inequality, and create added social value (Murray et al., 2010; Howaldt & Schwarz, 2010). These innovations are strongly value-driven, and based on principles of social justice, inclusion, empowerment, and community participation. It is important to emphasize that social innovations often arise from community initiatives, inter-institutional collaboration, and the aspiration to fundamentally transform approaches to solving social problems (Čižikienė, Urmanavičienė, 2018; Čižikienė, 2024). Social

innovations require systemic thinking and the ability to operate across sectors integrating the resources and knowledge of the public, private, and non-governmental sectors (Jamali et al., 2011). This reveals their dependence on social capital: without trust-based relationships, effective communication, and a culture of collaboration, social innovations struggle to achieve sustainability or scalability (Fowler, 2014, Čižikienė, 2020). It can be stated that social capital not only fosters a culture of innovation but also enables the expansion of social innovations. This allows organizations to restructure their internal governance and service delivery models, involve marginalized groups, introduce new collaboration mechanisms, and address social challenges (Thompson, 2018). These ongoing changes strengthen organizational resilience, learning capacity, and adaptability, while also broadening the organization's social impact in society (Jamali et al., 2011; Pakeltienė, Ragauskaitė, 2017; Čižikienė, Urmanavičienė, 2018).

The interaction between social capital and social innovations is a process that creates synergy. Social capital forms a favorable environment for the emergence and establishment of social innovations, while innovations, in turn, strengthen and expand social capital by creating new connections, trust, and empowerment mechanisms (Molina-Morales et al., 2010; Salajegheh, Pirmoradi, 2013). Empirical studies confirm that organizations with a high level of social capital are more likely to initiate innovative projects, more effectively engage stakeholders, and create long-term value for communities (Jamali et al., 2011; Pakeltienė, Ragauskaitė, 2017; Čižikienė, Urmanavičienė, 2018).

In summary, it can be stated that both social capital and social innovations play a strategic role in the development of organizations. Their mutual interaction is particularly important in the social services sector, where the effectiveness of activities is determined not only by formal infrastructure but also by the ability to create trust-based relationships and new solutions-oriented toward social welfare. Therefore, integrating these concepts into organizational development strategies becomes a crucial element in the pursuit of sustainability, resilience, and social impact.

The Role of Social Capital in Developing Social Innovations in Organizations Providing Social Services

The contemporary social services sector operates in a dynamic, constantly evolving, and increasingly complex environment characterized by uncertainty, growing social tensions, and accelerating structural changes (Omellas et al., 2018; Čižikienė, 2020). Organizations that provide social services continually face shifting social problems – rising income and opportunity inequality, an aging population, long-term unemployment, migration, and a range of psychosocial challenges (Payne, Askeland, 2016; Payne, 2020). In such conditions, innovative organizational modeling becomes increasingly relevant. This approach is based on creating new forms of services, empowering communities, fostering inter-institutional collaboration, and adopting principles of participatory governance. All these directions are closely linked to the concept of social innovations, which is defined as the application of new, effective, and value-driven solutions to better meet social needs and enhance societal well-being. Social innovations are not limited to technological changes – they emerge from the need to reorganize existing service delivery models, transcend sectoral boundaries, and engage communities in the creation and implementation of solutions (Damanpour et al., 2018; Voegtlin et al., 2022). Therefore, social service organizations inevitably face the dual task of not only responding to existing social problems but also acting as active initiators of change. In this process, social capital plays a particularly significant role. It not only sustains the operational sustainability of social service organizations (SSOs) but also acts as a catalyst for innovative change. In social service organizations, social capital acquires a unique significance – it is a resource based on trust, mutual solidarity, community engagement, and the structure of social networks (Salajegheh, Pirmoradi, 2013). According to Coleman (1988), it is a functional resource that allows individuals and groups to coordinate their activities toward a common goal. The importance of social capital is especially pronounced where activities are not strictly commercial and decision-making is guided by value-based principles, empowerment, and inclusiveness – precisely the conditions in which social service organizations operate (Salajegheh, Pirmoradi, 2013; Fowler, 2014).

Social service organizations (SSOs) often operate under conditions of social risk, where formal resources are limited. Consequently, the ability to mobilize informal networks, build community, and sustain inter-institutional collaboration becomes a key factor (Pitzer, Streeter, 2015). In this context, social capital enables organizations not only to maintain connections with service recipients but also to forge valuable links with local government institutions, other non-governmental actors, and even the private sector. This is an essential prerequisite for social innovations, which require a holistic perspective and multi-level partnerships (Jamali et al., 2011). In the social services sector, social innovations are often not created in a hierarchical manner or through standardized procedures – they emerge from local initiatives, participatory decision-making, and social relationships that allow for the identification and formation of alternative service models that are more responsive to needs. Social capital acts as a positive environment in which trust-based communication, knowledge sharing, and collective responsibility for change can flourish (Čižikienė, Urmanavičienė, 2018; Aman-Ullah et al., 2022; Bebbington, Foo, 2024).

Using Putnam's (2004) classification, three forms of social capital can be identified – bonding, bridging, and linking – each of which has a specific significance for the innovation activities of social service organizations:

- Bonding social capital helps maintain strong ties among employees, volunteers, and clients, ensuring internal organizational stability and value-driven practices.
- Bridging social capital allows the organization to open itself to new ideas through connections with external communities or representatives of other sectors – crucial for seeking innovative solutions.
- Linking social capital helps establish relationships with institutions that possess power, political influence, or financial resources – an essential aspect for achieving systemic change or expanding services.

These forms of social capital, if actively developed and nurtured, allow social service organizations to function not only as service providers but also as active innovators capable of transforming social

assistance systems (Bhatt, Altinay, 2014).

Leaders in social service organizations play a crucial role – they not only shape the organization's strategic direction but also act as intermediaries between internal and external networks(Nahapiet, 2009; Čižikienė, 2020). A leader's ability to identify, sustain, and expand social connections determines whether the organization can mobilize enough trust, knowledge, and support to implement innovations. Empirical studies (Čižikienė, 2020; Aman-Ullah et al., 2022) show that where social capital is perceived as a strategic management element, organizations are more open to change, more engaged in networked processes, and have greater operational impact. Structurally open networks create conditions for intergroup information flows and idea hybridization (Nahapiet, 2009; Bebbington, Foo, 2024). Such network characteristics foster social innovations, enabling the faster identification of changing needs and the implementation of flexible solutions, which is particularly important in areas such as social care, integrative services, and support for vulnerable groups (Damanpour et al., 2018).

In summary, social capital in the social services sector is essential not only as a structure of relationships but also as a factor that enables the development of social innovations. It acts as a bridge between traditional service provision and transformative solutions that address contemporary social challenges. Organizations that can strategically manage their social capital – by bringing communities together, forming partnerships, and engaging stakeholders – become not only service providers but also active participants in social change. Therefore, the creation and nurturing of social capital should be regarded as one of the most important conditions for the sustainable, innovative, and socially responsible activities of social service organizations.

Materials and Methods

This research aims to reveal how social capital contributes to the creation of social innovations in organizations providing social services. Considering the theoretical and practical complexity of the research object, a qualitative research methodology was chosen. This approach allows for an in-depth exploration of the participants' personal experiences, professional insights, and the activity contexts

in which the dynamics of social capital and its links with innovation processes (Thompson, 2018; Ruslin et al., 2022).

The research sought not only to conceptually understand the functions of social capital in organizational life, but also to empirically investigate how this intangible resource influences the emergence, development, and implementation of social innovations in practice.

Based on this aim, the research question was formulated: *How does social capital enable social innovations in organizations providing social services?*

For data collection, the semi-structured interview method was chosen, which allowed the researcher to maintain the focus of the study while enabling participants to freely and comprehensively reflect on their experiences (Ruslin et al., 2022). The interview questions focused on the expression of social capital within organizational environments. Specifically, the following problematic areas were formulated: *how trust-based internal relationships are created, how external collaborations operate, and what conditions either foster or constrain the emergence and implementation of innovative solutions?*

The study involved five social workers from different organizations providing social services. All participants had at least three years of professional experience and were directly involved in creating and implementing innovative solutions within their organizations (specifically using the EQUASS system). Participants were selected through criterion-based sampling to ensure that their experience was relevant to the research aim. To ensure ethical considerations, the anonymity of participants was guaranteed – identities in the study are labeled as SW1, SW2, SW3, SW4, and SW5. The interviews were conducted in person, lasting between 30 and 60 minutes. All interviews were recorded only after obtaining informed consent from the participants and were later transcribed. The data obtained were analyzed using the qualitative content analysis method, which allowed for the structured identification of significant themes, their classification, and interpretation within the context of theoretical approaches (Krippendorff, 2018).

The study was conducted in strict adherence to the ethical principles of social science research (Krippendorff, 2018). All

participants were informed about the aims and procedures of the research, participated voluntarily, and had the right to withdraw at any time or discontinue the interview. The collected information is kept confidential and used solely for academic purposes, ensuring the protection of personal data and the transparency of the study.

Results and Discussion

After conducting qualitative content analysis, five main categories emerged, reflecting the expression of social capital and its impact on the creation of social innovations in organizations providing social services: internal social relationships and trust, networking opportunities, participation in decision-making, knowledge management processes, and prospects for activity improvement.

Internal social relationships and trust. This research category revealed a fundamental dimension of social capital: the quality of internal relationships within the organization and their impact on innovation creation. Two subcategories were identified in the analysis: the quality of interpersonal relationships and trust in the leadership. Both aspects are closely tied to the formation of social capital and directly influence the organization's capacity to generate and implement social innovations. Participants consistently emphasized that informal, warm, and collaborative relationships among colleagues not only create a positive work atmosphere but also lay the foundation for emotional safety. Emotional safety, as a component of organizational culture, is essential for innovative behavior, since only when employees feel psychologically secure do they dare to ask questions, propose new ideas, or experiment with unconventional solutions: *"There must be no fear among us. You can say what's wrong, and you know you'll be heard."* (SW2); *"Relationships here are like in a family – we don't just work, we also support each other."* (SW4).

These statements reflect concepts discussed in the literature related to psychological safety (Edmondson et al., 2004) and social support as a catalyst for innovative behavior (John et al., 2004). High-quality interpersonal relationships become not only a foundation for emotional well-being but also knowledge sharing and joint problem-solving. In this context, social capital manifests as

bonding capital (Putnam, 2004), which strengthens the internal cohesion among organization members and supports a shared identity and values base.

The second subcategory, trust in leadership, highlighted the leader's role as the most important element in creating psychological empowerment, which fosters employee initiative and innovation. The study participants indicated that they valued not only formal involvement in decisions but also the real consideration of their opinions at the leadership level: *"Our manager not only asks for our opinion but also takes it into account – we feel included."* (SW5). Trust-based relationships with leadership enable an organizational culture to emerge that, according to Coleman (1988), reduces the need for control mechanisms and allows employees themselves to make decisions.

Moreover, this leadership model aligns with transformational leadership, which, as noted by Bass et al. (2003), is based on inspiration, empowerment, and employee involvement in shaping the organizational vision. In the social context, this strengthens the organization's social capital and fosters a culture of trust, which becomes a key element of an innovative environment.

From the theoretical perspective of social capital, this category confirms that long-term recurring relationships (Bourdieu, 1986) between employees and leadership form a structure in which social exchanges become possible and productive. Internal trust, mutual support, and cultural cohesion create the foundation for innovative processes, which require openness, collaboration, and risk tolerance. The empirical results suggest that internal social relationships and trust are not merely indicators of good relationships but are strategic resources that determine the potential for creating social innovations. Organizations that cultivate these relationships are able not only to maintain organizational stability but also to foster change potential based on shared commitment and collective responsibility.

Networking opportunities. The research findings revealed that one of the most important sources of social capital in social service organizations is external networking – namely, the ability to establish and maintain relationships with various stakeholders beyond the organization's boundaries. This category was divided into two subcategories: institutional connections and partnerships. These

connections were not only channels for information and resource exchange but also collaboration-based initiatives that enabled the formation of innovative ideas. The study participants emphasized that collaboration with municipalities, other non-governmental organizations (NGOs), educational, health, and business institutions not only provides opportunities to implement new ideas but also ensures service accessibility and funding opportunities: *"When we started collaborating with another institution, we realized how much we could learn from them."* (SW3); *"We have a strong partnership with the municipality; when we need resources or advice, we always reach out."* (SW2); *"We got involved in project-based activities after hearing about them in training, and then the local community supported us."* (SW5). Institutional connections not only enable organizations to share best practices but also act as a structural source of social capital (Lin, 2002; Felício et al., 2014; Aman-Ullah et al., 2022). Such connections are particularly important for smaller NGOs that may lack sufficient resources themselves but can access knowledge, competencies, or funding through networks. A significant subcategory is informal partnerships, which include relationships formed not through official agreements but through personal acquaintance, participation in events, professional networks, or community forums. Participants highlighted that it is precisely these informal contacts that often act as a catalyst for innovative changes: *"During an event, we learned about EQUASS, and it spurred changes for us."* (SW1); *"We had an informal conversation with colleagues from another organization, and the idea for new practices for service recipients was born."* (SW4); *"Joint meetings with colleagues are always useful – we take away something we can apply in our work."* (SW2). This interaction is based on trust and mutual recognition, which, according to Putnam (2004), is a key aspect of bridging social capital. Communication between different organizations allows them to *"connect ideas"* (SW5) and transfer them from one context to another – an especially relevant practice for the dissemination of innovations in the social services sector. The data show that informal relationships often have greater potential for action than formal ones, as they are more flexible, faster, and less bureaucratic. Such connections foster organizational learning, open new opportunities for partnerships, and support a networking culture

that becomes a cornerstone of innovation ecosystems (Moulaert et al., 2013).

In summary, it can be stated that networking opportunities act as an important source of social capital, strengthening an organization's ability to adapt, learn, and operate flexibly. Institutional connections create conditions for formal support and systemic change (linking capital), while informal partnerships enable the spontaneous generation of new ideas and their rapid implementation (bridging capital).

Participation in decision-making. The analysis of the study revealed that one of the most significant expressions of social capital in social service organizations is the inclusion of employees in decision-making processes. This category was broken down into two interrelated subcategories: formal participation opportunities and informal influence on decisions. Both directly contribute to fostering a sense of responsibility, strengthening intrinsic motivation, and forming an innovative organizational culture. Study participants emphasized that being invited to participate in meetings, working groups, or quality management processes – such as implementing the EQUASS system – allowed them not only to express their opinions but also to become directly involved in decisions that shape service quality and the direction of the organization. Such involvement strengthens employees' trust in the organization and creates a clearer sense of the significance of their work: *"We have a voice. They not only ask for our opinion but also respond to it – it encourages us to suggest things."* (SW5); *"When you're invited to participate from the very beginning, you feel responsible and want the idea to succeed."* (SW1); *"Maybe I don't always make the decisions formally, but I'm in the process – and that's important."* (SW3). This inclusion aligns with the principles of participatory governance, which, as Putnam (2004) notes, are essential for a democratic organizational culture and employee empowerment. Meanwhile, Coleman (1988) states that structures that promote collective action help create social capital that facilitates more effective goal achievement, reduces the need for control, and increases organizational efficiency. Equally significant is the influence of employees on decisions through daily conversations with colleagues or leadership, spontaneous suggestions, or reflections during work.

Informal contacts create a less hierarchical, more open space for communication, where ideas emerge organically, grounded in trust and a sense of equality: *"It's important that you can informally share your ideas with your supervisor."* (SW2); *"Often, decisions start from informal conversations – and then grow into projects."* (SW4); *"When you can communicate openly with the supervisor, you feel like part of a strong team."* (SW5).

In conclusion, it can be stated that employee participation in decision-making acts as one of the key mechanisms for enabling social capital within an organization. By involving employees in the creation and implementation of decisions, mutual trust between organizational members and leadership is strengthened (Coleman, 1988), along with a sense of responsibility and belonging to the community – an aspect especially important in the service sector, where work is based on cooperation, empathy, and mutual respect (Putnam, 2000). Such inclusion also increases the organization's ability to act innovatively, as decisions created jointly by employees foster more creativity, openness to new ideas, and flexibility than top-down instructions (Ghosh, 2015). In the social services sector, where decisions often involve sensitive, value-laden issues and people's well-being, the voice of employees becomes not only a managerial necessity but also an important ethical dimension. Decision-making practices based on participation not only shape social capital but also contribute to the organization's social responsibility and its ability to create and implement innovative, values-based changes.

Knowledge management processes. The study results revealed that knowledge management processes within the organization play an essential role not only as an element of daily activities but also as a condition that determines the strengthening of social capital and the emergence of social innovations. The study participants highlighted that knowledge in the organization is constantly created, shared, accumulated, and applied through both formal and informal interactions. This process, in which knowledge gains value through sharing, is inseparable from the organization's ability to learn and adapt to changing conditions. Formal aspects of knowledge management included training, professional development programs, internal meetings, and participation in external events. Such training

helps to ensure a unified understanding of operational directions, values, and quality standards in the organization. However, the participants placed particular importance on informal knowledge exchanges that occur through daily conversations, joint problem-solving, "learning by doing", and peer consultations: *"I learn so much from my colleagues – sometimes a single phrase in a conversation makes me see the situation differently."* (SW4); *"Some of the best solutions were born from meetings where everyone speaks freely."* (SW1); *"We constantly learn from each other – nothing stands still."* (SW5). These responses show that knowledge management is not merely an administrative process – it is part of organizational culture, characterized by trust, openness, and shared responsibility. Through daily interactions, knowledge most often gains meaning and practical value. Theoretically, these results closely align with Ghosh (2015) view that social capital acts as an infrastructure for creating, sharing, and integrating knowledge. Social trust, shared norms, and active collaboration create conditions for effective knowledge management, which stimulates the organization's ability to learn and adapt. It also links to the SECI model by Nonaka and Takeuchi (Hoe, 2006), which emphasizes four processes of knowledge transformation: socialization, externalization, combination, and internalization – all of which are observed in the daily activities of social services workers. In the social services sector, where decisions are often related to complex and sensitive aspects of people's lives, knowledge management gains even greater importance. The ability to quickly and efficiently use existing knowledge, share experiences, or adopt best practices from colleagues becomes the organization's guarantee for flexibility and quality.

Overall, it can be said that knowledge management processes are one of the main forms of social capital expression in an organization. They allow employees not only to share information but also to collectively generate knowledge that helps in the development and growth of the organization. Such processes foster continuous learning, adaptation to change, and the creation of social innovations – especially in the dynamic and value-sensitive environment of social services.

Initiatives for service improvement. The research data revealed

that one of the most notable manifestations of social capital in social service organizations is the initiatives of employees and teams aimed at improving service quality and implementing innovative solutions. All social workers participating in the study provided specific examples of how new practices were initiated in their organizations, especially when implementing the EQUASS (European Quality in Social Services) quality assurance system. Although this system externally regulates activity improvement, the research results show that many changes emerged "from within" as a response to the reflection, observations, and joint problem analysis of the organization's employees: *"When we noticed that there was a lack of feedback from service users, we created a new questionnaire, which helped us adapt better."* (SW3); *"EQUASS encouraged us to rethink some processes – but the decisions came from ourselves."* (SW2); *"We had a lot of internal discussions, but in the end, we created a better model for service evaluation."* (SW4). These examples reveal that the innovations were not a mechanical response to external requirements, but rather an activation of the organization's social capital, which enabled collective decision-making and the development of new ideas. Internal relationships – such as employee trust and willingness to cooperate – as well as external relationships, which allowed for the adoption of best practices, receiving methodological support, or operating according to common quality guidelines, played an important role. From a theoretical perspective, these initiatives align with Putnam's (2004) theory of social capital, which emphasizes the synergy of bonding and bridging capital. Strong internal ties (bonding) allow teams to work harmoniously, reflect on processes, and engage in change, while relationships with other institutions (bridging) open access to external resources, new ideas, or standards. Thus, innovative initiatives arise not from a single factor, but from networked activities, where internal and external insights and interests intersect. It is also important to mention that such initiatives did not end with isolated changes – they promoted organizational learning and activity transformation. Participants stated that through such initiatives, not only did specific service provision methods change, but the organization's ability to reflect, act strategically, and independently generate solutions also grew stronger.

In conclusion, it can be said that initiatives for service improvement in social service organizations do not emerge randomly; they rely on elements of social capital: trust, mutual interaction, collective learning, and networked collaboration. Such initiatives not only improve service quality but also foster organizational practice flexibility, openness to change, and the ability to create social value in the long term.

Conclusions

The research revealed that social capital is a crucial factor enabling the creation and development of social innovations in social service organizations. The expression of social capital manifests through internal and external organizational relationships, which function as both structural and functional environments for innovative processes. Internal social ties, based on mutual trust, openness, and a supportive organizational culture, create a psychologically safe environment that is conducive to creativity and initiatives. Meanwhile, trust in leadership strengthens employee engagement and sense of responsibility, encourages the sharing of ideas, and contributes to joint strategic thinking.

Networking opportunities, encompassing both formal and informal ties with other organizations, local governments, or other networks, allow social service organizations to access new knowledge, resources, and best practices. Such relationships become channels through which innovative solutions and methodologies enter the organization, while the organization itself becomes involved in a broader inter-institutional innovation network. Participation in decision-making strengthens employee empowerment, fosters their motivation to contribute to change, and creates the foundations for participatory management that allow for collective initiatives to emerge. Such inclusion helps employees identify with the organization, increases their trust, and encourages shared responsibility for service quality.

Knowledge management processes acquire significant importance, manifesting not only through formal learning infrastructures but also through informal daily interactions between colleagues. Such processes foster continuous organizational learning, the accumulation of knowledge, and its practical application, which

directly relates to the organization's ability to generate and implement innovations. The research data showed that service improvement initiatives most often arise from internal reflection, collective analysis, and the experience of employees. In this case, innovations are not imposed from the outside but are born within the organization, based on social trust, relationships, and a shared vision of activities.

The study emphasizes the crucial role of managers in maintaining social capital and forming an innovative culture. Managers who are able to act not only as administrative decision-makers but also as dialogue creators, intermediaries between internal and external networks, and enablers of employee empowerment become key leaders of organizational change. They create a space in which social capital transforms not only into a structural resource but also into a practical mechanism that allows the organization to adapt, improve, and create social value. It can be said that social capital not only creates a favorable environment for the emergence of social innovations but is also a necessary condition for their development and sustainability in the social services sector, which operates in a dynamic, socially sensitive, and complex environment.

Acknowledgements

The research was financed by the Research Council of Lithuania (RCL), contract registration No. S-PD-24-43.

References:

1. *Aman-Ullah, A., Mehmood, W., Amin, S., & Abbas, Y. A. (2022). Human capital and organizational performance: A moderation study through innovative leadership. Journal of innovation & knowledge, 7(4), 100261.*
2. *Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. Journal of applied psychology, 88(2), 207.*
3. *Bebbington, A., & Foo, K. (2024). Social capital and development. In The Companion to Development Studies (pp. 186-190). Routledge.*
4. *Bhatt, P., & Altinay, L. (2013). How social capital is leveraged in social innovations under resource constraints?. Management Decision, 51(9), 1772-1792.*
5. *Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.) Handbook of Theory and Research for the Sociology of Education. New*

York, Greenwood, pp. 241-258

6. *Čižikienė, J. (2020). Vadovų lyderystė pasirenkant diegti Europos socialinių paslaugų kokybės užtikrinimo sistemą (Doctoral dissertation, Mykolo Romerio universitetas.).*
7. *Čižikienė, J. (2024). The impact of social innovations on human resource management in an organization. Scientific monograph, 306-326.*
8. *Čižikienė, J., & Urmanavičienė, A. (2018). Social capital and social cohesion in community development. Management of innovative development the economic entities/edited by M. Bezpartochnyi, I. Britchenko; Higher School of Social and Economic. Przeworsk: Nova Sandec, 2018, vol. 1. ISBN 9788365196835.*
9. *Coleman, J. S. (1988). Social capital in the creation of human capital. American journal of sociology, 94, S95-S120.*
10. *Damanpour, F., Sanchez-Henriquez, F., & Chiu, H. H. (2018). Internal and external sources and the adoption of innovations in organizations. British Journal of Management, 29(4), 712-730.*
11. *Edmondson, A. C., Kramer, R. M., & Cook, K. S. (2004). Psychological safety, trust, and learning in organizations: A group-level lens. Trust and distrust in organizations: Dilemmas and approaches, 12(2004), 239-272.*
12. *Felício, J. A., Couto, E., & Caiado, J. (2014). Human capital, social capital and organizational performance. Management decision, 52(2), 350-364.*
13. *Fowler, A. (2014). Innovation in institutional collaboration. ISS Working Paper Series/General Series, 584, 1-29.*
14. *Ghosh, K. (2015). Developing organizational creativity and innovation: Toward a model of self-leadership, employee creativity, creativity climate and workplace innovative orientation. Management Research Review, 38(11), 1126-1148.*
15. *Hoe, S. L. (2006). Tacit knowledge, Nonaka and Takeuchi SECI model and informal knowledge processes. International Journal of Organization Theory & Behavior, 9(4), 490-502.*
16. *Howaldt, J., & Schwarz, M. (2010). Social innovation. Concepts, research fields, and international trends. Dortmund: Sozialforschungstelle Dortmund.*
17. *Jamali, D., Yianni, M., & Abdallah, H. (2011). Strategic partnerships, social capital and innovation: Accounting for social alliance innovation. Business Ethics: A European Review, 20(4), 375-391.*
18. *John, A., Selvaraj, V., & Jisham, M. (2024). Catalysts of social change and innovation: Mediating role of social self-efficacy and social support on social entrepreneurial intentions. African Journal of*

Science, Technology, Innovation and Development, 16(6), 808-821.
19. *Krippendorff, K. (2018). Content analysis: An introduction to its methodology. Sage publications.*
20. *Lin, N. (2002). Social capital: A theory of social structure and action (Vol. 19). Cambridge university press.*
21. *Molina-Morales, F. X., & Martínez-Fernández, M. T. (2010). Social networks: effects of social capital on firm innovation. Journal of small business management, 48(2), 258-279.*
22. *Moulaert, F. (Ed.). (2013). The international handbook on social innovation: collective action, social learning and transdisciplinary research. Edward Elgar Publishing.*
23. *Murray, R., Caulier-Grice, J., & Mulgan, G. (2010). The open book of social innovation (Vol. 24). London: Nesta.*
24. *Muscalu, E., Iancu, D., & Halmaghi, E. E. (2016). The influence of the external environment on organizations. Journal of Defense Resources Management, 7(2), 133.*
25. *Nahapiet, J. (2009). Capitalizing on connections: social capital and strategic management. Social capital: Reaching out, reaching in, 205-236.*
26. *Ornellas, A., Spolander, G., & Engelbrecht, L. K. (2018). The global social work definition: Ontology, implications and challenges. Journal of Social Work, 18(2), 222-240.*
27. *Pakeltienė, R., & Ragauskaitė, A. (2017). Creative synergy as a potential factor for the development of social innovations. Research for Rural Development, 2, 174-181.*
28. *Payne, M. (2020). Modern social work theory. Bloomsbury Publishing.*
29. *Payne, M., & Askeland, G. A. (2016). Globalization and international social work: Postmodern change and challenge. Routledge.*
30. *Pérez-Macías, N., Fernández-Fernández, J. L., & Rúa-Vieites, A. (2021). Entrepreneurial intention among online and face-to-face university students: The influence of structural and cognitive social capital dimensions. Journal of International Entrepreneurship, 19(3), 434-467.*
31. *Pitzer, K. A., & Streeter, C. L. (2015). Mapping community capitals: A potential tool for social work. Advances in Social Work, 16(2), 358-371.*
32. *Putnam, R. D. (Ed.). (2004). Democracies in flux: The evolution of social capital in contemporary society. Oxford University Press.*
33. *Ruslin, R., Mashuri, S., Rasak, M. S. A., Alhabsyi, F., & Syam, H. (2022). Semi-structured Interview: A methodological reflection on the development of a qualitative research instrument in educational studies. IOSR Journal of Research & Method in Education (IOSR-*

JRME), 12(1), 22-29.
34. *Salajegheh, S., & Pirmoradi, N. (2013). Social capital of the organization. Social Capital, 7(12), 40-52.*
35. *Thompson, M. (2018). Social capital, innovation and economic growth. Journal of behavioral and experimental economics, 73, 46-52.*
36. *Vasiliauskaitė J. (2007). Įmonės socialinio kapitalo įtakos įmonės veiklai vertinimo modelis (Doctoral dissertation, Kauno technologijos universitetas)*
37. *Voegtlin, C., Scherer, A. G., Stahl, G. K., & Hawn, O. (2022). Grand societal challenges and responsible innovation. Journal of Management Studies, 59(1), 1-28.*
38. *Western, M., & Huang, X. (2024). Social mobility and social capital. Handbook on Inequality and Social Capital, 351-365.*

Svitlana Kucherenko
ORCID: https://orcid.org/0000-0001-7560-1212
PhD in Economics, Associate Professor
Liudmyla Levaieva
ORCID: https://orcid.org/0009-0004-9569-585X
PhD in Economics, Associate Professor
Oleh Kucherenko
ORCID: https://orcid.org/0000-0002-7500-030X
Postgraduate Student
Hryhorii Skovoroda University in Pereiaslav
(Pereiaslav, Ukraine)

DIRECTIONS OF DEVELOPMENT OF INNOVATIVE ENTREPRENEURSHIP IN UKRAINE

https://doi.org/10.5281/zenodo.15707845

Abstract
This chapter of the monograph examines the current trends in the development of innovative entrepreneurship in Ukraine, in particular, the formation of strategies for innovative growth of enterprises and the introduction of digital technologies as key factors in stimulating innovation activity. Particular attention is paid to the analysis of the internal and external innovation environment, the identification of priority industries for the development of start-ups, the use of public-private partnership mechanisms and venture capital financing instruments. The role of digital transformation, in particular the introduction of artificial intelligence, blockchain technologies, the Internet of Things and digital platforms in the formation of a new business ecosystem, is investigated. Practical recommendations are offered on how to adapt domestic enterprises to the challenges of the innovation economy and ensure their sustainable development.

Keywords: *innovative entrepreneurship, development strategy, digital transformation, start-ups, venture capital financing, digital technologies, innovation ecosystem, innovation, Ukraine.*

Introduction

Innovative entrepreneurship is a key driver of economic development in the context of globalisation and digital transformation. It contributes to the country's competitiveness, job creation and economic growth through the introduction of new technologies and the development of innovative solutions. The development of innovative entrepreneurship is of strategic importance for Ukraine, which is in the process of integrating into the global economy and implementing market reforms. In the light of the challenges of the current economic environment, such as the instability of financial markets, outflow of personnel and lack of investment, it is necessary to find effective ways to stimulate innovation activity.

The study of the state and prospects of innovative entrepreneurship in Ukraine will help identify the main factors influencing its development and propose effective strategies that can ensure economic growth in the long term. In addition, an analysis of global experience will help to adapt best practices to Ukrainian realities. The research topic is particularly relevant in the context of Ukraine's integration into the global economy and the introduction of digital technologies in various business sectors, which opens up new opportunities for innovative entrepreneurs.

The purpose of the study is to analyse the current state and identify prospects for the development of innovative entrepreneurship in Ukraine. The study also includes an analysis of international experience in this area and the development of recommendations for improving the efficiency of innovative business, in particular through the introduction of the latest technologies and digital solutions.

Materials and Methods

It should be noted that many foreign and domestic scholars have studied innovative entrepreneurship and its development in Ukraine and the world, including the following: Acs, Z. J., Estebro, T., Audretsch, D. B., Robinson, D. T., Babinska, S. Ya., Hnatenko, I. A., Kravchuk, I. I., Kryvoviaziuk, I. V., Kravchenko, O. O. and Rybak, N. S., Stoliarchuk, Ya. M., Shypulina, Yu. S.

Zoltan J. Acs, PhD, Professor at George Mason University, London School of Economics, who proposed the concept of National Systems of Entrepreneurship, studied the relationship between innovation, entrepreneurial activity and economic growth.

Canadian researcher Estebro Tomas studied the commercialisation of innovations and entrepreneurial activities of researchers, and American researcher David B. Audretsch studied the relationship between small enterprises, innovation and regional development.

The author S. Babinska in her works explores the state policy of supporting the innovative activity of enterprises. The researcher I. Hnatenko analysed the institutional conditions for the development of innovative entrepreneurship, and Ya. Stoliarchuk studies the digitalisation of the economy and innovative entrepreneurship in the context of globalisation.

Researchers I. Kravchuk and David T. Robinson work on the development of startups, venture capital and innovation infrastructure, and I. Kryvoviaziuk, studies the digital economy and innovative business modernisation.

In their research, the authors O. Kravchenko and N. Rybak consider approaches to the formation of a strategy for innovative development of entrepreneurial activity, which is a key factor in increasing the competitiveness of business in the face of rapid market changes.

In the publications of Yulia Shipulina and Yurii Smoliar, the authors consider promising areas of application of digital technologies for innovative development of the Ukrainian economy.

Another important aspect is the need to address the challenges faced by Ukrainian start-ups and innovative enterprises, such as insufficient funding, lack of infrastructure to support innovation, and low activity of venture capitalists. In view of this, the topic of the study is timely and important for creating conditions that will facilitate the development of innovative entrepreneurship in Ukraine. This once again shows that the chosen topic of the article is relevant and timely.

The methodological basis of the study of the directions of development of innovative entrepreneurship in Ukraine is a systematic approach that allows a comprehensive analysis of the economic, social, organisational and technological aspects of innovative development of enterprises.

The following methods were used in the study: analysis and synthesis – to identify current trends in innovative business development, analysis of Ukraine's economic policy in the field of innovation; comparative analysis method – to study international

experience in the formation of innovative strategies and its adaptation to the conditions of Ukrainian business; expert survey – with the involvement of specialists in the field of innovative business, technology and public administration to assess the relevance of the proposed strategies and digital solutions.

The research methodology allows formulating practical recommendations for developing effective strategies for innovative development and stimulating entrepreneurship through the introduction of the latest digital technologies.

Results

The creation of a favourable investment climate is a key task for the development of innovative entrepreneurship in Ukraine. Innovative companies, especially in the early stages of their development, need access to financial resources to implement their ideas, conduct research and development (R&D), introduce new technologies and enter the market. However, the investment climate for innovative businesses in Ukraine faces a number of challenges, such as insufficient venture capital development, high risks for investors, an unstable regulatory environment and limited financing opportunities. To develop this sector, it is necessary to implement strategic solutions that will help attract investment and support entrepreneurs.

One of the key components of creating a favourable investment climate is the development of the venture capital market. Venture capital is an important source of funding for start-ups operating in high technology, information technology, biotechnology and other innovative industries. However, the venture capital market in Ukraine remains underdeveloped.

Reasons for the insufficient development of venture capital: there are only a few large venture capital funds in Ukraine that invest in startups, most of them have limited capital and cannot cover a significant number of projects; startups and innovative enterprises are characterised by a high level of risk due to uncertainty about the success of new products and technologies, investors are afraid to invest in such projects due to possible capital losses; many venture capitalists do not have sufficient information about the innovation market and technology projects in Ukraine, which also reduces their activity.

Table 2.4

Comparison of venture capital in Ukraine and other countries (2022 - 2024)

Country	*Total venture capital investment (million USD/EUR)*			*Number of deals / companies financed*		
	2022	*2023*	*2024*	*2022*	*2023*	*2024*
Ukraine	~350 million USD (for 6 months) [1, 2].	~USD 170 million (for 6 months) [10, 11]	283 million USD (for 6 months) [19]	V.e.	About 200 deals (in total for the war period until the end of 2022 and Q1 2023)	The exact number of deals for 2024 is not specified, but there is a mention of a recovery in activity after the downturn in 2023
Poland	775 million EUR [3]	EUR 466 million [12]	~500 million EUR (2.1 billion PLN) [20, 21].	460 transactions / 435 companies	399 companies / 438 deals	142 companies / 148 deals
Germany	Tens of billions of EUR (for PE and VC together) [4, 5].	7.2 billion EUR [13, 14].	7.4 billion EUR [22]	More than 1000 companies (for PE and VC together)	1088 financial rounds	1407 financial rounds
USA	209.4 billion USD [6, 7]	170.6 billion USD [15, 16]	209.4 billion USD (according to KPMG) / 215.4 billion USD (according to NVCA) [23, 24].	~$100 million	Decrease by 18% in the number of transactions compared to 2022	14,320 transactions (according to NVCA)
Europe (in total)	~821 million EUR (for CEE) [8, 9].	57.1 billion EUR [17, 18]	~57.1 billion EUR (according to PitchBook, with a decrease) [25, 26]	451 companies (for CEE)	Decrease in the number of transactions (no exact figure)	Decrease in the number of deals, but increase in average deal sizes and valuations.

As can be seen from the table, the volume of venture capital in Ukraine is much lower than in the leading countries of the world. This demonstrates the need for government support and stimulation of the venture capital market.

Ways to stimulate the development of venture capital in Ukraine: creation of state programmes to support venture capitalists, the state can stimulate the venture capital market through co-investment

programmes or guarantees for venture capital funds, which will reduce risks for investors and increase investment; introducing tax incentives for venture capitalists, reducing the tax burden for investors investing in start-ups, could significantly increase their activity – this includes incentives for investing in innovative companies at the early stages of development.

Other factors also hinder the development of venture capital business: insufficient sources of financing for innovation; underdevelopment of the stock market, lack of guarantees for venture capital investors; unstable situation in the scientific knowledge generation sector; insufficient number of "quality" projects in the venture capital market; lack of specialists in the venture capital market; imperfect intellectual property protection system and lack of a developed institution for commercialising innovations (Lytvyn & Bulak, 2022).

Tax incentives are one of the most effective mechanisms for stimulating investment in innovative entrepreneurship. In many countries around the world, governments provide innovative companies and their investors with tax incentives to reduce business costs and encourage investment in high-risk projects.

Possible tax incentives for Ukraine: research and development (R&D) tax credit, companies that spend money on research and implementation of innovative solutions may receive a discount on income tax; preferential tax regime for start-ups, in the early stages of development, start-ups may be entitled to income tax exemption for the first few years of operation.

Table 2.5

Examples of tax incentives for innovative enterprises in different countries

Country	Tax incentive	Description
USA	R&D Tax Credit	Income tax rebate for research expenses
United Kingdom	Enterprise Investment Scheme (EIS)	Benefits for investors investing in start-ups
Israel	Tax incentives for technology start-ups	Income tax exemption for new start-ups

The introduction of similar incentives in Ukraine will help to increase the number of innovative projects and attract additional

investment. One of the challenges faced by innovative businesses in Ukraine is the complexity and length of registration and licensing procedures. Bureaucracy and uncertainty in the legal framework can delay the launch of new projects, which has a negative impact on the development of the innovation economy. To improve the investment climate, it is necessary to simplify the process of registering innovative companies and obtaining licences.

Ways to simplify registration procedures: digitalisation of registration processes, creation of electronic platforms for business registration and licensing will reduce the time and number of required documents; simplification of requirements for start-ups, innovative companies can be provided with simplified registration and reporting requirements, allowing them to focus on business development instead of bureaucratic procedures.

Table 2.6

Duration of business registration in different countries

Country	Average time to register a business (days)	Main trends
Ukraine	1-3 (online); 3-5 (offline) [28, 29].	Ukraine has significantly simplified the registration process, especially through online services ("Diia"). The most common option is a sole proprietorship or LLC.
USA	1-5 (some states); 10-20+ (other) [30, 31].	The duration depends on the state and type of legal entity. Delaware is known for fast LLC/Corporation registration. Other states may take longer for federal and local approvals.
Poland	1-7 (online); 7-14 (offline) [32, 33].	Poland offers fast online registration for some forms (e.g., Sp. z o.o. – analogue of LLC). The total duration may include additional steps (registration with the tax office, social security).
Germany	15-30 (for GmbH) [34, 35].	Germany has a more bureaucratic process that often involves notarisation, registration in the trade register (Handelsregister) and obtaining a tax number. The process can be longer due to the notary and waiting times.

As can be seen from the table, Ukraine and Poland demonstrate relatively fast business registration, especially for simple forms and when using online services (where applicable). The US has a very differentiated approach, where the speed depends on the state chosen. Germany has traditionally had a longer and more formalised registration process due to the significant number of steps required and the involvement of a notary. All countries are striving for digitalisation and simplification of procedures, but the difference in bureaucratic traditions is still noticeable.

Innovative companies play a key role in the development of Ukraine's economy, contributing to the introduction of new technologies, the development of start-ups and the creation of new jobs. However, a favourable regulatory environment is essential for the successful operation and development of such companies. In particular, registration and licensing procedures have a significant impact, which can either stimulate business development or hinder it due to complexity, lack of transparency or excessive bureaucracy.

Registering a company is the first and one of the most important steps in starting a business. Innovative companies, especially start-ups, need to enter the market quickly, as their business models are often based on ideas that may become obsolete if the product launch is delayed. In this context, excessive barriers to registration may hinder the development of the country's innovation sector.

International experience shows that simplified registration procedures, minimisation of required documents and quicker permits have a positive impact on the dynamics of innovative companies. For example, in Singapore and Estonia, the company registration process is conducted electronically and takes only a few hours. This allows entrepreneurs to focus on business development instead of wasting time on bureaucratic procedures.

In Ukraine, while steps have been taken in recent years to simplify business registration, including the creation of a unified state register of legal entities, the process is still relatively complex and time-consuming. In particular, innovative companies face additional difficulties when their activities require special licences. Licensing is another critical element of the regulatory system for innovative companies, particularly in the IT, pharmaceutical, biotechnology and energy sectors. The licensing process in Ukraine is still overly

regulated in some sectors, which may deter innovative businesses from expanding their operations.

It is worth noting that, unlike traditional companies, innovative enterprises can offer new solutions that are not always subject to clear legal and regulatory frameworks. This leads to situations where innovative companies cannot quickly obtain a licence due to the lack of clear rules. In addition, many businesses complain about the length of the licensing process, lack of transparency and the absence of uniform standards for licensing requirements.

For example, in the field of medical innovation, obtaining a licence to develop new medicines can take several years, which is a serious obstacle for start-ups working on innovative medical technologies.

The current legal framework of Ukraine provides general provisions for the registration and licensing of enterprises, but there are no clear simplified procedures specifically adapted for innovative companies. The Law of Ukraine "On Licensing of Economic Activities" defines general licensing requirements, but does not take into account the specifics of innovative businesses, which often requires adaptation of regulations to new technologies.

There are also some initiatives to improve the regulatory environment for innovative companies. For example, a number of laws have been passed to support the IT industry, including the creation of Diia City, a special legal and economic regime for IT companies. This initiative provides for certain simplifications in the registration and licensing process, but remains targeted and does not cover all innovation sectors.

Many countries around the world have effective models for simplifying registration and licensing procedures that could be useful for implementation in Ukraine. Let us consider some successful examples.

Singapore is one of the countries with the most favourable conditions for starting innovative businesses. Company registration procedures are fully online and take only a few hours. Licensing is also simplified as much as possible thanks to special support programmes for start-ups and innovative enterprises. Estonia has introduced e-Residency, which allows foreign entrepreneurs to register their companies online and gain access to the EU market. The entire procedure is carried out without physical presence and takes

only a few days. Israel offers significant tax incentives for start-ups and simplified regulatory procedures for high-tech companies. The government is actively investing in the development of innovation infrastructure and supports the rapid commercialisation of new technologies.

To improve the situation with registration and licensing of innovative companies in Ukraine, the following proposals should be considered: Ukraine already has a basic infrastructure for online registration, but this process should be made more flexible and accessible for innovative companies, in particular, the number of required documents should be reduced and the time for processing applications should be shortened; it is important to create a separate legal framework for companies engaged in innovation, especially in the fields of IT, pharmaceuticals, biotechnology and financial technologies, which should include simplified licensing procedures and reduced bureaucratic obstacles; it is necessary to introduce uniform standards for obtaining licences in innovative industries and ensure transparency of this process through electronic platforms.

Simplify regulations for startups. Special regimes for start-ups should be introduced to allow them to operate without licences for the first few years of their operations. This will allow companies to test their innovative products on the market and raise the necessary funding for further development.

Introduce financial incentives for companies going through the licensing procedure, such as tax breaks or subsidies to cover registration and licensing costs.

State grants are one of the most important instruments for supporting scientific research. In Ukraine, there are several programmes aimed at financing research projects, among which the leading ones are: the Scientific Research Fund of Ukraine – provides funding for basic and applied research; the Innovation Support Programme – aimed at supporting projects that have the prospect of commercialisation and introduction of innovative products; grants for young scientists – provided to scientists under the age of 35 to support their research.

These programmes are an important element of R&D support, but their funding is also limited, which affects the number and quality of projects implemented. Table 2.7 shows the number of applications

submitted and grants awarded under these programmes in 2020 (data for 2021-2024 are not available).

Table 2.7

Number of applications submitted and grants awarded in Ukraine, 2020

Source of grants / Competition	Number of applications submitted	Number of grants awarded	Share of projects that received funding, %
NRFU: "Science for the security of man and society"	516	81	15,7
NRFU: "Supporting research by leading and young scientists"	415	135	32,5
Total	931	216	23,2

Source: based on data of the National Research Foundation of Ukraine and the Ministry of Education and Science of Ukraine

Despite the large number of applications submitted, the share of projects that receive funding remains low, indicating the limited capacity of state grant programmes to support more research.

The number of employees in Ukrainian start-ups varies considerably: typically, start-up projects employ three people in addition to the founders, with an average of up to six. According to the Ukrainian Startup Ecosystem survey, the largest of the surveyed startups employs 46 people. For 84% of startup founders, the main source of funding is their own money, while 31% received grants from the Ukrainian State Startup Fund (Half of Ukrainian startups… 2022).

The main problems with funding research projects through state grants in Ukraine are: the allocation of funds for research through state grant programmes is insufficient to cover the real needs of research institutions and universities; many researchers say that the process of obtaining a state grant is complex and bureaucratic, often the procedures for preparing documents are too burdensome and time-consuming, which demotivates young researchers; grants are often awarded mainly to leading research institutions, while younger researchers or smaller universities receive significantly fewer opportunities; stakeholders complain about the lack of transparency in the evaluation of research projects, which can lead to inefficient allocation of funds.

An analysis of international experience shows that in many countries government grants play a leading role in stimulating R&D activities. Some countries actively use various forms of financial support, in particular: USA – the National Science Foundation and other government agencies fund thousands of projects annually, with a significant portion of funds allocated to support young researchers; Germany – the Deutsche Forschungsgemeinschaft provides grants for researchers of various levels, with a special focus on the development of interdisciplinary projects; Finland – the Academy of Finland actively supports the funding of research projects through grants for universities and independent research centres, which contributes to their innovative development.

International experience shows the need to create an effective system of allocating funds based on transparent criteria and stimulating interdisciplinary research, which could be useful for Ukraine.

The following proposals should be considered to improve the efficiency of funding research projects through state grant programmes in Ukraine:

1. Increase state funding. The first step should be to increase the amount of funds allocated to R&D. This can be done by increasing the share of science expenditures in the state budget to at least 1% of GDP.
2. Update the mechanisms for distributing grants. The application and evaluation process should be made more transparent and accessible. This includes improving online application platforms and introducing clear criteria for project selection.
3. Create new programmes for young scientists. Special attention should be paid to supporting young researchers. Introducing additional grant programmes or increasing the amount of funds in existing programmes can help attract new talent to the scientific field.
4. Financial support for interdisciplinary research. The introduction of grant programmes for interdisciplinary research can help to speed up the implementation of innovative solutions in various sectors of the economy.
5. International cooperation. Co-financing programmes with international organisations and donors should be developed, which will help attract additional resources for Ukrainian science.

Increasing funding for research projects through state grant programmes is a necessary step to ensure the sustainable development of science and technology in Ukraine. Despite the existing programmes, the amount of funds allocated and their use remain insufficient to realise the full potential of scientific research. By adopting international practices, increasing funding, and improving grant distribution mechanisms, Ukraine will be able to stimulate scientific activity and ensure innovative development of the national economy.

Today, artificial intelligence (AI) and machine learning (ML) technologies play a leading role in the development of innovative entrepreneurship around the world. Their implementation can significantly increase the efficiency of business processes, reduce operational costs, improve the quality of customer service and create new products and services. In Ukraine, artificial intelligence and machine learning are starting to take a significant place in the business sector, but their implementation still faces a number of challenges, such as lack of infrastructure, limited funding and lack of qualified personnel.

One of the most important applications of artificial intelligence in innovative entrepreneurship is the automation of business processes. AI can efficiently perform tasks that previously required human resources, allowing companies to reduce staff costs, increase productivity, and focus on more strategic areas.

Automation of routine operations. By adopting AI, companies can automate routine processes such as data processing, customer query management, or internal documentation. For example, AI-based technologies can automatically process large amounts of information and perform tasks such as sorting data, answering customer queries via chatbots, or automating financial reporting.

Big Data analytics. AI allows businesses to analyse large amounts of data, make predictions, and make more informed business decisions. This is especially important for innovative companies operating in industries where responsiveness to market changes and competitive advantage are key. AI-based analytical systems can collect, process, and analyse data in real time, which allows for more effective business strategies.

Table 2.8

Examples of AI application for business process automation in various fields

Industry	An example of automation	Implementation results
Finance and insurance	Automation of client requests processing	Reduce staff costs, speed up processes
Production	Inventory and logistics management	Optimising resource use and reducing costs
Retail	Order management via chatbots	Improving customer service, increasing loyalty
Healthcare	Automation of medical data processing	Improving diagnostic accuracy, accelerating treatment

As the table shows, artificial intelligence can be used in various sectors of the economy to improve business efficiency. In Ukraine, the introduction of AI in retail, financial services, and manufacturing can significantly improve the productivity of companies and increase their competitiveness.

Machine learning (ML), a subset of artificial intelligence, allows systems to learn on their own and improve their performance without the need for human intervention. This opens up new opportunities to create innovative products and services that can better respond to changing market and customer needs.

Examples of machine learning applications:

1. With the help of ML, companies can create products and services tailored to individual customer needs. For example, ML allows you to personalise advertising offers, predict consumer behaviour based on their previous actions, or implement individual e-commerce recommendations.

2. Machine learning technologies allow analysing historical data to predict future trends. This can be useful in industries such as finance, where predicting asset prices or risks can significantly improve the efficiency of business decisions.

3. Machine learning allows innovative companies to create new products faster and improve them based on user feedback. For example, ML can be used to develop new software products or robotics that can learn and adapt to changes on their own.

Predictive analytics helps businesses set realistic goals, use

available resources efficiently, and develop sales and purchasing strategies in line with market demand (Bharadiya, 2023). Today, automated ML tools exist to solve such practical problems. The use of ML allows Ukrainian companies to improve the efficiency of their products and introduce innovations that can quickly adapt to market needs.

Artificial intelligence also plays an important role in improving customer experience, which is one of the key success factors for any business. Thanks to AI capabilities, companies can provide their customers with personalised services, automate services and improve customer experience.

Table 2.9

Examples of machine learning application in the development of innovative products and services

Scope	Application of ML	Advantages
Marketing	Personalised recommendations for customers	Increase conversion, customer loyalty
Financial technology (FinTech)	Risk forecasting and creditworthiness analysis	Reducing the risk of defaults, improving lending efficiency
Technology start-ups	Software development with AI	Faster development and testing of new products

Key areas of AI application to improve customer experience:

- Automation of customer service through chatbots. AI-powered chatbots can provide instant responses to customer queries, automating service 24/7. They can efficiently answer questions, help with product selection, or resolve technical issues, which improves the overall customer experience.

- Individualisation of communication. With AI, companies can tailor their marketing campaigns to the individual needs of customers using personalised messages, product and service recommendations. This helps to increase customer engagement and boost sales.

- Feedback analysis. AI also allows analysing customer feedback in real time, identifying problems, and solving them quickly. This increases customer satisfaction and helps companies better understand their weaknesses.

As the table shows, the use of AI to improve the customer experience can increase customer satisfaction, reduce operational costs, and improve communication between companies and their customers.

Business digitalisation is one of the key drivers of economic development in the 21st century. Innovative companies that actively implement digital technologies are able to improve the efficiency of their processes, optimise costs and create new products and services that meet modern market needs.

Table 2.10

The impact of AI on customer experience in different industries

Industry	Using AI to improve customer experience	Results
E-commerce	Chatbots for customer service	Reduced time for processing requests, increased loyalty
Telecommunications	Automate responses to technical queries	Increased customer satisfaction, reduced workload for operators
Banking sector	Automated consultations through apps	Improved customer service speed, reduced queues

The Internet of Things (IoT) is one of the most promising technologies that facilitates business digitalisation. IoT allows physical objects to be connected via the Internet, enabling them to interact and collect data in real time. In Ukraine, business digitalisation and IoT implementation are only gaining momentum, but there is great potential for their development, especially in such industries as manufacturing, agriculture, energy and transport.

Digitalisation of business involves the introduction of modern technologies to automate processes, use digital platforms to interact with customers and employees, and analyse data to make more informed decisions. In Ukraine, this trend is actively developing, but there are a number of challenges that hinder the rapid adoption of digital solutions at all levels of business.

Key digitalisation opportunities:

1. With digitalisation, businesses can automate routine operations, reduce HR costs and improve productivity. For example, automation of accounting, logistics, and inventory management reduces the

human factor and allows for faster task completion.

2. Digital platforms provide companies with the ability to interact with customers in real time, providing more efficient service and increasing loyalty. CRM systems, chatbots and mobile applications allow for personalised communication with customers.

3. Thanks to digitalisation, businesses have access to large amounts of data, which allows them to better understand the market, predict trends and make more informed decisions. This helps companies adapt to changes faster and create competitive advantages.

Key challenges to digitalisation in Ukraine: one of the main problems is the underdeveloped digital infrastructure, including access to high-speed internet in the regions, which limits the opportunities for the introduction of digital technologies, especially for small and medium-sized businesses in remote areas; low digital literacy among employees and managers is also a significant obstacle to business digitalisation.

Many companies do not have enough IT professionals or access to relevant training programmes; the implementation of digital solutions often requires significant financial investments, which not all businesses are willing to make, especially in times of economic instability.

As the table shows, the level of business digitalisation in Ukraine lags far behind developed countries. This indicates the need for active measures to improve access to infrastructure and training to support digital change in the business sector.

The Internet of Things (IoT) is a key technology for business digitalisation, as it allows physical devices to be connected via the Internet and data to be collected and processed in real time. IoT is used in many industries, such as manufacturing, agriculture, transport, logistics, energy, etc. Its implementation enables businesses to optimise their processes, reduce costs and increase efficiency.

Examples of IoT use in business:

1. IoT allows for the integration of sensors and intelligent control systems into production lines, which can automate processes, reduce equipment downtime and improve resource management. It also helps to monitor the status of machines in real time and provide timely technical support to avoid breakdowns.

Table 2.11

Level of business digitalisation in Ukraine compared to other countries (2020-2024)

Country	2020	2021	2022	2023	2024
Ukraine [40, 41, 42].	WDCI: 58th place;	WDCI: 54th place	missing data	E-commerce share in retail: 10%	missing data
USA [42, 43, 44].	A high, global leader. Digital transformation market: $469.8bn	A tall, global leader.	SME tech usage: 93% ; Digital Transformation market: $1.09 trillion	SME tech usage: 95%; Cloud maturity: 78%; GenAI adoption (SME): 20%	SME tech usage: 99%; Digital Transformation market: $1.67 trillion (forecast); GenAI adoption (SME): 40%
Germany [45, 46, 47].	DESI: ~ 13-14th place in the EU	DESI: 13th in the EU	missing data	missing data	Digitalisation Index: +14% over 5 years (by 2024); Share of SMEs with completed digitalisation projects: 35%
Poland [42, 45, 48].	DESI: ~24th place in the EU	DESI: ~24th place in the EU	DESI: ~24th place in the EU	Cloud adoption (CEE): 73% of companies	missing data

2. IoT allows farmers to use smart crop and livestock management systems based on data analysis. IoT-based systems help to control humidity levels, monitor weather conditions and optimise the use of resources such as water and fertiliser.

3. IoT allows companies to track the movement of goods, the condition of vehicles and optimise delivery routes. This reduces transport costs and ensures faster and more accurate delivery of goods.

In Ukraine, IoT is being actively implemented in industries such as agriculture and industrial production, but there is still much room for expansion in areas such as transport and energy. For the effective development of IoT infrastructure, it is necessary to create the right conditions for investors and entrepreneurs, as well as to develop digital infrastructure.

Table 2.12

Examples of IoT use in various sectors of the economy

Industry	An example of IoT usage	Implementation results
Production	Automation of equipment monitoring	Reduce downtime and optimise repair costs
Agriculture	Irrigation management based on weather data	Increase yields, reduce water use
Logistics and transport	Real-time cargo tracking	Reduce delivery costs, improve accuracy
Energy	Monitoring and managing energy consumption	Optimising energy use and reducing costs

For the full implementation of IoT in Ukraine, it is important to ensure the availability of adequate infrastructure, including high-speed internet, modern data networks (4G/5G), and the creation of a regulatory framework for the regulation of IoT activities. The absence of such conditions can significantly slow down the development of IoT and limit the possibilities of its application in business.

Key challenges for the development of IoT infrastructure in Ukraine: lack of broad 4G/5G coverage in rural areas and industrial zones hampers the implementation of IoT technologies, as many devices require a constant internet connection to transmit data; for effective IoT implementation, a regulatory framework should be created that would regulate data protection issues, security standards for IoT devices and certification requirements; there are not enough programmes in Ukraine to encourage businesses to implement IoT solutions, especially for small and medium-sized enterprises. Government grants or tax incentives could accelerate business digitalisation.

To overcome these challenges, Ukraine needs to invest more actively in digital infrastructure and create incentives for businesses to adopt innovative IoT solutions.

Blockchain and financial technologies (FinTech) are becoming integral components of modern innovative entrepreneurship around the world, including Ukraine. They provide new opportunities to attract investment, increase transparency, reduce financial costs and create a reliable infrastructure for doing business. Innovative projects that use blockchain and FinTech solutions gain significant competitive advantages by being able to raise capital quickly, automate business

processes and ensure secure transactions. Blockchain technology originates from the work of cryptographers Stuart Haber and Scott Stornett "How to Time Stamp a Digital Document" (Tapscott & Tapscott, 2018).

Table 2.13

Factors influencing IoT implementation in Ukraine

Factor	Description	Impact on the development of IoT
4G/5G access	Lack of full coverage in the regions	Restricts the use of IoT in rural areas and in manufacturing
Legal framework	Lack of standards and requirements for IoT security	Creates legal uncertainty for business
Government support	Lack of financial incentives for implementation	Slows down the development of innovative projects

Blockchain is a distributed record-keeping technology that allows information to be stored in immutable blocks that are linked together, providing a high level of security and transparency. For innovative businesses, blockchain provides an opportunity to address key issues related to trust, risk mitigation and data protection.

The main advantages of blockchain for innovative projects:

1. One of the main advantages of blockchain technology is the transparency of financial transactions, which allows market participants to control every stage of the transaction. This is especially important for innovative projects where investor confidence is a critical factor. The use of blockchain allows transactions to be recorded in a blockchain, which ensures data integrity and transparency for all participants.

2. The blockchain provides a high level of protection against fraud or fraudulent actions due to its decentralised nature. This helps to reduce the risks of document forgery or changing the terms of transactions without the consent of the parties.

3. Smart contracts are blockchain-based software protocols that automatically fulfil the terms of agreements between parties. They significantly reduce the time and costs of legal and administrative processes. For innovative businesses, this allows them to make deals without intermediaries, automating financial transactions and other business processes.

In Ukraine, blockchain technology is already being actively implemented in the financial sector, where it helps to ensure transparency and security of transactions. However, there is great potential for its expansion in sectors such as logistics, healthcare and energy.

The statistics of the areas in which research was carried out with the use and development of blockchain technology is quite indicative, with the leading scientific works in the field of computer science (35.23%), engineering (19.32%), mathematical methods (9,05%), decision support (8.61%), business, management and accounting (5.97%), social sciences (4.86%), medicine (2.91%), energy (2.66%), physics and astronomy (2.22%), materials science (2.12%), medicine (1.94%), and others (5.12%) (Melnychenko & Hartinger, 2016).

Table 2.14

Examples of blockchain use in support of innovative projects

Scope	Application of blockchain	Advantages
Financial services	Using blockchain to process payments and transfers	Transparency of operations, cost reduction
Logistics	Real-time supply chain tracking	Increase efficiency, reduce fraud
Healthcare	Protecting and storing medical data	Improving patient data security, simplifying access to information
Energy	Decentralised platforms for energy trading	Reducing intermediary costs, automating transactions

Financial technology (FinTech) is an integral part of the modern business environment. FinTech solutions help small and medium-sized enterprises to simplify access to financial resources, reduce operating costs and provide new ways of interacting with customers. In Ukraine, FinTech is developing rapidly and is becoming an important tool for supporting innovative entrepreneurship.

Key areas of FinTech development in Ukraine:

1. Alternative sources of funding for startups. One of the key advantages of FinTech is the development of crowdfunding and P2P lending platforms. This allows innovative projects to receive funding directly from investors or other businesses, bypassing traditional banking structures.

2. Mobile payments and e-wallets. FinTech solutions also include the development of mobile payment systems and e-wallets that make financial transactions more accessible and convenient. This is especially important for innovative companies that work with a large number of customers or seek to enter the global market.

3. Digital banks and non-banks. Digital banks, such as monobank, are actively developing in Ukraine, providing simplified access to financial services for entrepreneurs. This reduces barriers to doing business and provides fast and convenient solutions for financial transactions.

Thanks to the development of FinTech, Ukrainian start-ups and innovative companies are gaining access to new financing instruments, which significantly improves their ability to quickly scale their business and enter new markets.

Despite the great opportunities, the implementation of blockchain and FinTech solutions in Ukraine faces a number of challenges, including imperfect legislative regulation, limited access to financial resources, and insufficient business awareness of these technologies.

Table 2.15

Examples of the use of FinTech solutions in innovative projects in Ukraine

FinTech solutions	Description	Benefits for innovative companies
Crowdfunding platforms	Attracting investments directly from investors	Quick access to finance, minimising costs
P2P lending	Intercompany loans without bank participation	Lower lending costs, access to capital
Electronic wallets	Mobile payments and cashless transactions	Speeding up payments, making it easier for customers
Digital banks	Banking services via mobile applications	Simplified access to financial services, reduced costs

Key challenges: Ukraine does not have a clear legal framework for regulating blockchain and FinTech activities, which creates legal uncertainty for investors and entrepreneurs; blockchain and FinTech technologies require specialised knowledge and skills; many Ukrainian businesses, especially small and medium-sized ones, are

unaware of the potential of blockchain and FinTech or have a lack of understanding of how these technologies can be applied to their operations.

Development prospects: the introduction of clear rules for regulating the blockchain and FinTech sector will facilitate the development of these technologies and increase confidence in them on the part of investors and businesses, the state should work more actively to create an appropriate legal framework; the creation of state programmes to support startups in the blockchain and FinTech sector can significantly increase the level of innovation activity, which may include grant programmes, tax benefits and other incentives for the development of this sector; raising awareness of blockchain and FinTech through training programmes for entrepreneurs and business employees will allow for faster adoption of these technologies in various sectors of the economy.

Blockchain and financial technology (FinTech) have great potential to support innovative projects in Ukraine. They provide opportunities for transparent and secure transactions, quick access to finance, automation of business processes and improved customer experience.

Conclusions

Simplifying the procedures for registering and licensing innovative companies in Ukraine is an important step towards stimulating economic growth and developing the innovation ecosystem. Based on international experience, it can be concluded that efficient and transparent regulatory procedures contribute to the creation of a favourable business environment for innovative enterprises. Ukraine needs to continue to work on optimising these processes by introducing modern electronic systems, simplifying licensing, and creating special regimes for start-ups. This will allow the country to attract more investment in innovation and strengthen its position in the global innovation market.

Digitalisation of business and the introduction of the Internet of Things (IoT) are critical for the development of innovative entrepreneurship in Ukraine. Digital solutions enable businesses to optimise their processes, reduce costs and create new competitive advantages. However, to fully implement IoT in Ukraine, a number of

challenges need to be overcome, including the lack of high-speed internet access in the regions, unresolved legal issues and a lack of government support. Investing in digital infrastructure and creating a favourable environment for innovative business development will allow Ukraine to reap the benefits of digital transformation.

The development of blockchain and FinTech solutions in Ukraine faces a number of challenges, including the lack of a clear legal framework, a shortage of qualified professionals and low business awareness. To overcome these challenges, it is necessary to develop the legal framework, support FinTech and blockchain start-ups, and implement educational programmes to raise awareness of these technologies. This will help develop innovative entrepreneurship and increase the competitiveness of the Ukrainian economy.

References:

1. *Ukrainian Tech Ecosystem 2022. URL: https://uatechcommunity.com/ukrainian-tech-ecosystem-2022/*
2. *Investment activity in Ukraine (2022). Ministry of Economy of Ukraine. URL: https://me.gov.ua/Documents/Detail?lang=en-GB&id=8d61973a-5cac-4a90-b34e-0a9b774c3607&title=InvestmentActivityInUkraine-2022*
3. *Polish VC market outlook 2022. Serwis Spółki PFR Ventures. URL: https://pfrventures.pl/en/artykul/polish-vc-market-outlook-2022*
4. *Private Equity and Venture Capital – GTAI (Germany Trade & Invest). URL: https://www.gtai.de/en/invest/industries/private-equity-and-venture-capital-75214*
5. *Venture capital market study 2022 – PwC (Germany): URL: https://www.pwc.de/de/deals/venture-capital-marktstudie/2022/pwc-venture-capital-market-study-2022.pdf*
6. *Q4 2022 venture capital investment trends. EY – US. URL: https://www.ey.com/en_us/insights/growth/q4-2022-venture-capital-investment-trends*
7. *Useful Stats: The state of US venture capital in 2024. SSTI. URL: https://ssti.org/blog/useful-stats-state-us-venture-capital-2024*
8. *2022 CEE PE Statistics Report – Invest Europe. URL: https://www.investeurope.eu/news/newsroom/cee-venture-capital-investment-achieves-new-record-in-2022-other-statistics-point-to-region-s-resilience/*
9. *Venture capital statistics 2022 – Tillväxtanalys (Sweden). URL: https://www.tillvaxtanalys.se/en-GB/publikationer/statistik/statistikserien/riskkapitalstatistik2022venturecapital.126608.html*

10. *Ukrainian venture capital and private equity overview – UVCA. URL: https://uvca.eu/userfiles/docs/uvca-mind_ua-dealbook_2022-23-q1-eng.pdf*
11. *u.ventures Releases New Report on Ukraine's Startup Ecosystem. URL: https://u.ventures/news/u-ventures-ukraines-startup-ecosystem/*
12. *Polish VC market outlook 2023. Serwis Spółki PFR Ventures. URL: https://pfrventures.pl/en/artykul/polish-vc-market-outlook-2023*
13. *KfW Venture Capital Dashboard Q4 2023. URL: https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Dashboard/KfW-VC-Dashboard-Q4-2023_EN.pdf*
14. *Investment activity in German venture capital market is better than sentiment – KfW. URL: https://www.kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details_796288.html*
15. *2023 Venture Capital Investment Trends: U.S. and Southeast Spotlight – BIP Ventures. URL: https://www.bipventures.vc/news/2023-venture-capital-investment-us-southeast*
16. *Caryn Slotsky, Drew Carneal, Wyatt Yasinski. (2024). US PE/VC Benchmark Commentary: Calendar Year 2023 – Cambridge Associates. URL: https://www.cambridgeassociates.com/insight/us-pe-vc-benchmark-commentary-calendar-year-2023/*
17. *2023 Annual European Venture Report – PitchBook. URL: https://pitchbook.com/news/reports/2023-annual-european-venture-report*
18. *Atomico-state-of-european-tech-report-2023.pdf – Invest Europe. URL: https://www.investeurope.eu/media/7424/atomico-state-of-european-tech-report-2023.pdf*
19. *DealBook of Ukraine 2024 by AVentures Capital. News. UVCA. URL: https://uvca.eu/news/dealbook-of-ukraine-2024-by-aventures-capital*
20. *Transactions on the Polish VC Market 2024 – Commentary by Krzysztof Drzyzga – Verestro. URL: https://www.verestro.com/post/transactions-on-the-polish-vc-market-2024-commentary-by-krzysztof-drzyzga*
21. *Elena Ghinita (2025). How Much Did Polish Startups Raised In 2024: H2 2024 Deals Breakdown – The Recursive. URL: https://therecursive.com/how-much-did-poland-startups-raised-in-2024-h2-2024-deals-breakdown/*
22. *KfW Research: German start-ups raised around EUR 7.4 billion in 2024. URL: https://www.kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details_834048.html*
23. *2024 Global VC investment rises to $368 billion as investor – KPMG. URL: https://kpmg.com/xx/en/media/press-releases/2025/01/2024-*

global-vc-investment-rises-to-368-billion-dollars.html
24. *NVCA Releases 2025 Yearbook Showcasing 2024 VC Trends. URL: https://nvca.org/press_releases/nvca-releases-2025-yearbook-showcasing-2024-vc-trends/*
25. *2024 Annual European Venture Report – PitchBook. URL: https://pitchbook.com/news/reports/2024-annual-european-venture-report*
26. *Leah Hodgson (2025). European VC roars back: 2024 sees soaring valuations and deal sizes – PitchBook. URL: https://pitchbook.com/news/articles/european-vc-roars-back-2024-sees-soaring-valuations-and-deal-sizes*
27. *Lytvyn, I. V. & Bulak, Yu. V. (2022). Venture business in ukraine in wartime conditions. Management and entrepreneurship in Ukraine: stages of formation and problems of development, 2 (8). 283-291.*
28. *Official web portal of Diia. URL: https://diia.gov.ua/*
29. *Ministry of Justice of Ukraine. URL: https://minjust.gov.ua/*
30. *U.S. Small Business Administration (SBA). URL: https://www.sba.gov/*
31. *Incorporate.com (by CSC). URL: https://www.incorporate.com/*
32. *Polish Investment & Trade Agency (PAIH). URL: https://www.paih.gov.pl/*
33. *Biznes.gov.pl. URL: https://www.biznes.gov.pl/pl/*
34. *Germany Trade & Invest (GTAI). URL: https://www.gtai.de/en/invest/*
35. *KPMG. URL: https://kpmg.com/de/en/home/insights/2021/07/doing-business-in-germany.html*
36. *National Research Foundation of Ukraine: 216 grant agreements concluded. URL: https://mezha.net/ua/bukvy/nacionalnij-fond-doslidzhen-ukraini-ukladeno-216-dogovoriv-pro-nadannja-grantiv/*
37. *Report on the review of state budget expenditures in the field of science in terms of grant support for research... (MON). URL: https://mon.gov.ua/static-objects/mon/sites/1/budzhet/2024/11/29/zvit-pro-ohlyad-vytrat-derbyudzhetu-hrant-pidtrymky-naukovykh-doslidzhen-29-11-2024.pdf*
38. *Half of Ukrainian startups have no income - study. URL: https://www.epravda.com.ua/ news/2022/01/20/681646*
39. *Bharadiya J. (2023). Machine Learning and AI in Business Intelligence: Trends and Opportunities. International Journal of Computer (IJC), 48 (1). URL: https://www.researchgate.net/publication/371902170*
40. *Khaustova V. Ye., Kriachko Ye. M., Bondarenko D. V. (2024). Evaluation of Digitalization Processes in the Countries of the World and Ukraine According to World Indices and Rankings. Business-Inform, 9. 75-93. URL: https://www.business-*

inform.net/export_pdf/business-inform-2024-9_0-pages-75_93.pdf
41. *Anna Soha. (2024). How e-commerce is developing in Ukraine. Sprava.prom, 07.05.2024. URL: https://sprava.prom.ua/yak-rozvyvayetsya-elektronna-komercziya-v-ukrayini/*
42. *PwC CEE: Cloud Business Survey – CEE edition (2023). URL: https://cee.pwc.com/cee-cloud-business-survey-2023.html*
43. *Mooncamp: Digital Transformation Adoption Rates [Updated]. URL: https://mooncamp.com/blog/digital-transformation-adoption-rates/*
44. *U.S. Chamber of Commerce: The Impact of Technology on U.S. Small Business (2024). URL: https://www.uschamber.com/assets/documents/Impact-of-Technology-on-Small-Business-Report-2024.pdf*
45. *Wikipedia: Digital Economy and Society Index (DESI). URL: https://en.wikipedia.org/wiki/Digital_Economy_and_Society_Index*
46. *Jan Büchel, Marc Scheufen, Barbara Engels (2025). Digitalisation Index 2024: Digitalisation of the economy in Germany. URL: https://www.iwkoeln.de/en/studies/barbara-engels-jan-buechel-marc-scheufen-digitalisation-of-the-economy-in-germany.html*
47. *KfW: KfW SME Digitalisation Report 2024. URL: https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Digitalisierungsbericht-Mittelstand/KfW-Digitalisierungsbericht-EN/KfW-SME-Digitalisation-Report-2024.pdf*
48. *Mordor Intelligence: Poland Digital Transformation Market Size & Share Analysis. URL: https://www.mordorintelligence.com/industry-reports/poland-digital-transformation-market*
49. *Tapscott D. & Tapscott A. (2018). Blockchain revolution: how the technology behind bitcoin is changing money, business, and the world. Penguin, 365 p.*
50. *Melnychenko, O. & Hartinger, R. (2016). Role of blockchain technology in accounting and auditing. European cooperation, 7(14). 9–19. URL: https://journals.indexcopernicus.com/api/file/viewByFileId/106810*

Oksana Perchuk
ORCID: https://orcid.org/0000-0002-6484-7011
PhD in Economics, Associate Professor
Roman Vovchenko
ORCID: https://orcid.org/0009-0003-8713-2988
PhD in Economics, Lecturer
Olena Yosypenko
ORCID: https://orcid.org/0009-0008-3537-3073
Lecturer
Chair of Accounting, Taxation and Business Management
Hryhorii Skovoroda University in Pereiaslav
(Pereiaslav, Ukraine)

INNOVATIVE BUSINESS SOLUTIONS: TRANSFORMATION OF STRATEGIES AND ETHICAL CHALLENGES IN THE IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE

https://doi.org/10.5281/zenodo.15707870

Abstract
The paper is devoted to the analysis of innovative business solutions in the context of transformation of enterprise strategies under the influence of artificial intelligence (AI). The main approaches to the implementation of AI in management processes, including automation of operations, optimization of business models and decision-making based on big data analysis, are investigated. Particular attention is paid to the ethical challenges that arise in the process of applying AI, including the problems of algorithm transparency, data bias, and responsibility for decisions. The conclusions of the paper emphasize the need to develop balanced strategies that take into account both the efficiency and ethical aspects of digital business transformation.

Keywords: *innovative technologies, business strategies, artificial intelligence, ethical challenges, digital transformation, automation, management decisions.*

Introduction

Artificial intelligence (AI) is an integrated system of algorithms and models capable of performing tasks that traditionally require human intelligence, such as analysis, forecasting, and decision-making. The modern definition of AI includes both machine learning methods and algorithmic approaches to natural language processing that automate routine processes. As a result, AI is not only a technological tool but also a strategic resource that helps to increase the efficiency and adaptability of business processes.

The introduction of artificial intelligence technologies is gaining strategic importance on a global scale, as it stimulates the transformation of traditional business strategies. Real-time analysis of big data, optimization of production and operational processes, as well as the introduction of innovative products and services allow companies to gain competitive advantages in the modern market. In addition, AI integration contributes to a more flexible response to changing market conditions and enhances the analytical potential of enterprises. Companies that use artificial intelligence already have a competitive advantage and record revenue growth of at least 30% after the introduction of AI. Some, such as Tesla, have increased their revenue by 300% (Pidhaina, 2024).

Artificial intelligence plays a key role in the transformation of business strategies, contributing to both the optimization of operational processes and strategic decision-making. By implementing algorithmic solutions and automated systems, businesses are able to reduce the human factor in routine tasks, which speeds up workflows and reduces operating costs.

The areas of AI implementation are quite diverse: healthcare, finance, retail, transportation, and manufacturing. In business, the most common ways to use AI are:

– market segmentation;
– recruitment and talent search;
– supply chain operations;
– record keeping;
– product recommendations
– content creation;
– inventory management;
– CR management;

– digital personal assistant;
– cybersecurity;
– customer service (Bolkvadze et al., 2023).

Scientists around the world have begun to study the AI phenomenon in various aspects, including the implementation of artificial intelligence in business activities, namely in information systems, management, operations management, decision-making, customer service, as well as various sectors of marketing, banking, education, and medicine. In general, the problems of artificial intelligence in various fields are studied by such scientists as M. Li, H. Schippers, A. Louis and E. Ngai, Y. Duan, V. Kuz'ymko, O. Pizhuk, O. Panukhnyk, M. Sadyku, T. Ashaolu, A. Ajay-Majebi, and S. Moussa, J. Huang, S. Saleh and Y. Liu, L. Tokar, D. Pchelyansky and S. Voinova, V. Reim, J. Astrom and O. Eriksson, M. Berube, T. Giannelia and G. Vial, N. Kravchenko, O. Mohylevska, A. Slobodianyk and I. Sidak.

Materials and methods

This study used modern methods of information analysis and processing. Both qualitative and quantitative approaches were used to obtain reliable results: statistical analysis of data, comparative analysis of results with previous studies.

Results and discussion

Optimization of operational processes with the help of AI is based on the use of modern methods of data analysis and forecasting, which provide more accurate decision-making in real time. Intelligent systems integrated into the business environment allow to quickly detect anomalies, optimize resource allocation, and increase the efficiency of logistics and production processes.

Automation and analysis of large amounts of data are becoming important factors in the competitiveness of companies. By applying AI technologies, businesses can conduct in-depth analysis of market trends, consumer behavior, and internal operational indicators, which helps to make strategic decisions based on data. This, in turn, allows companies not only to adapt to market changes faster but also to gain a stable advantage over competitors.

Innovative business models based on the use of AI include the creation of platforms for personalized customer service, the

development of new approaches to risk management, and the use of predictive analytics to expand the product portfolio. Such models, which focus on the integration of intelligent systems into the business structure, contribute to the formation of flexible and adaptive strategies that ensure the sustainable development of the enterprise in a dynamic competitive environment.

Integrating the latest AI technologies into traditional business processes faces numerous technical and organizational obstacles. Modern AI solutions require modernization of the existing IT infrastructure, high quality data, and specialized algorithms that are often not compatible with legacy systems. This creates additional technical challenges related to the development of integration solutions and ensuring stable operation of new technologies in the existing environment.

Adapting corporate culture to AI implementation is another significant challenge. Traditional organizational structures and employee habits can be an obstacle to the rapid adoption of innovative technologies. Reorientation of work processes requires systematic staff training, development of new competencies, and awareness of the importance of technological changes. Without the appropriate level of training, resistance to innovation may arise, slowing down the business transformation process.

The compatibility of existing IT systems with AI-based solutions is another key aspect of innovation. Many businesses use systems designed to solve traditional tasks that were not intended to be integrated with modern data analysis and machine learning technologies. This requires the development of specialized interfaces and adaptive solutions to ensure the interaction of new and old systems, which can require significant investment of time and resources. Careful planning of IT infrastructure modernization is critical for the effective implementation of AI technologies in business processes.

Transparency of algorithms is one of the key requirements for implementing AI technologies in the business environment. Ensuring the clarity of algorithms helps to increase user confidence and allows for appropriate responsibility for decisions. This requires the development of standards for documenting algorithmic processes, the use of Explainable AI methods, and the integration of audit

mechanisms that ensure accountability of decisions at all stages of their implementation.

Privacy and data protection remain critical aspects in the context of collecting, storing and analyzing large amounts of information. Challenges related to the processing of personal data require the use of modern cryptographic solutions, as well as the implementation of policies governing access to and use of data. Ensuring a balance between the need to analyze data for strategic decision-making and compliance with privacy requirements becomes the basis for the development of secure and ethical AI systems.

Algorithmic bias is another important ethical challenge, as inaccuracies in data or improper model tuning can lead to discriminatory decisions. Identifying and minimizing the risks of bias requires the use of specialized methods for assessing data quality, regular audits of algorithms, and the development of adaptive error correction mechanisms. It is also important to ensure the diversity of data used to train models and integrate the principles of equity and inclusiveness at all levels of AI solution development and implementation.

Modern regulatory approaches to artificial intelligence include both international and national initiatives aimed at developing standards of safety, transparency, and responsibility. Codes of ethics developed by leading international organizations lay the groundwork for the formation of local rules that ensure the balanced implementation of innovative technologies. These documents emphasize the protection of citizens' rights, prevention of discrimination, and upholding the principles of justice, which is becoming critically important in the context of the rapid development of AI.

State regulation in the field of AI is a key tool for creating a legal framework that ensures the ethical use of technology. Legislative initiatives are aimed at defining the framework for the use of algorithmic solutions, protecting personal data, and implementing audit systems that guarantee accountability and transparency. In addition, corporate policies developed in line with national and international standards help integrate ethical principles into business processes. This synergistic approach helps to build trust among consumers and partners, stimulating the sustainable and responsible

use of AI technologies on a global scale.

The integration of artificial intelligence (AI) into business processes has become a key success factor for many of the world's leading companies (Figure 2.6).

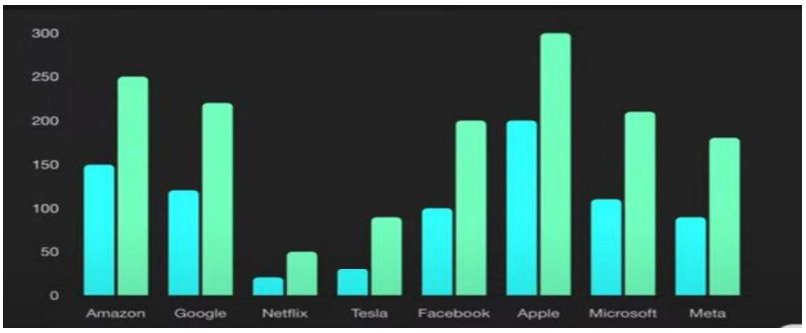


Figure 2.6 World leaders actively using artificial intelligence technologies

Source: (Pidhaina, 2024)

Amazon is actively using AI to personalize product recommendations, which helps to increase sales and improve the user experience. The algorithms analyze customer behavior and offer individualized recommendations that meet their interests and needs.

Netflix streaming service uses AI to analyze users' views and preferences, which allows it to create personalized content recommendations. This not only improves customer satisfaction but also increases the time spent on the platform (Pidhaina, 2024).

Retailer IKEA has implemented AI-based visual search tools that allow customers to visualize furniture and decorative items in their own interiors using augmented reality. It improves user experience and boosts sales (Pidhaina, 2024).

The development and implementation of AI solutions, such as Google Assistant and search algorithms, allowed Google to improve user experience and provide more relevant search results. This contributed to the growth of user confidence and market share.

The use of AI in autopilot systems has allowed Tesla to become a leader in the field of autonomous driving. Continuous improvement of algorithms and data collection from cars ensure better safety and

driving comfort.

Financial institution JPMorgan Chase uses AI to automate the analysis of legal documents, which significantly reduces the time and cost of information processing. This increases the efficiency and accuracy of legal operations (Artificial intelligence…, 2024).

The Uber transportation platform uses AI to optimize routes, forecast demand, and determine dynamic pricing. This ensures faster customer service and more efficient use of resources (Pidhaina, 2024).

The Starbucks coffee chain uses AI to personalize offers and improve customer interaction through its mobile application. Algorithms analyze purchase history and preferences, offering individualized recommendations and promotions (Ostapenko, 2024).

The experience of these companies shows that successful AI integration requires a clear understanding of business goals and careful planning. The key factors may include:

1) personalization of services (the use of AI to analyze customer data allows creating individual offers, which increases loyalty and satisfaction)

2) optimization of operational processes (automation of routine tasks and analysis of large amounts of data help to increase efficiency and reduce costs;

3) innovative approach (introduction of new technologies and AI-based solutions opens up additional opportunities for development and competitive advantages).

At the same time, it is important to take into account potential challenges and mistakes when realizing AI capabilities:

– Incorrect data processing (inaccurate or incomplete data can lead to false conclusions and negatively affect business decisions);

– Resistance to change (employees may resist the introduction of new technologies due to fear of the unknown or loss of employment. It is important to provide proper training and support for staff);

– ethical issues (the use of AI raises issues of privacy, security, and algorithmic bias. Companies should develop ethical standards and adhere to them when implementing AI solutions).

The experience of market leaders demonstrates that strategic and ethical implementation of AI can bring significant business benefits. However, it is important to take into account potential risks and

challenges, ensuring appropriate preparation and adaptation of the organizational culture.

Regarding the development of artificial intelligence in our country, it is worth noting that Ukraine is gradually developing in the field of AI and is already known for some successful projects. For example, Grammarly uses AI to improve the stylistics of English-language texts. Rozetka uses the system to predict demand for goods and optimize delivery processes. Genesis is a Ukrainian IT company that develops software for automating banking operations. The company uses AI to solve tasks in risk management, financial data analysis, and automation of routine processes. Other examples of AI application in Ukraine include SoftServe's automated logistics planning and management system, Datrics' data analysis system for financial solutions, and many others.

Artificial intelligence continues to revolutionize the business environment, opening up new market opportunities and at the same time posing a number of challenges. On the one hand, the introduction of AI helps to optimize operational processes, personalize services, expand analytical capabilities, and create innovative business models that allow companies to respond more effectively to market needs. On the other hand, the growing role of AI is accompanied by cybersecurity issues, personal data protection, and ethical dilemmas that require careful analysis and adaptive management.

Continuous technological development requires a corresponding update of ethical standards. Ensuring the transparency of algorithms, accountability of decisions and data protection is becoming critical to minimize the risks associated with bias and misuse of information. Adapting regulatory frameworks and codes of ethics to new challenges helps to create an environment where innovation is integrated with social and legal compliance, contributing to long-term business stability.

Achieving an optimal balance between innovative technologies and ethical principles is a key factor in the sustainable development of enterprises. The synergy of technological progress and social responsibility not only enhances the competitiveness of companies, but also ensures the trust of consumers and partners. Thus, strategic planning, which takes into account both new opportunities and

potential risks, is the foundation for developing effective business strategies in today's global environment.

Conclusions

Artificial intelligence, especially with the advent of ChatGPT, has become a breakthrough in the world and marked the beginning of the development of AGI, general artificial intelligence. Despite the concerns of experts, this technology brings more and more benefits to all areas where it is used. The introduction of artificial intelligence into business processes helps to transform enterprise strategies, improve the efficiency of management decisions, and optimize operations. The use of AI allows to improve data analysis, automate routine tasks, and create new competitive advantages.

However, along with technological opportunities, serious ethical challenges arise, including the transparency of algorithms, the risk of data bias, and responsibility for decisions made by AI. To successfully integrate intelligent technologies, companies must consider both economic and social aspects when developing policies for the responsible use of AI. A balanced approach to digital business transformation, combining innovation and ethical principles, will allow companies to ensure sustainable development and public trust.

References:

1. *10 AI agents that should be implemented and used in your company today. URL: https://skimai.com/uk/10-ai-%D0%B0%D0%B3%D0%B5%D0%BD%D1%82%D1%96%D0%B2-%D1%8F%D0%BA%D1%96-%D0%B2%D0%B0%D1%80%D1%82%D0%BE-%D0%B2%D0%B8%D0%BA%D0%BE%D1%80%D0%B8%D1%81%D1%82%D0%BE%D0%B2%D1%83%D0%B2%D0%B0%D1%82%D0%B8-%D0%BD/*
2. *Bolkvadze N.I., Bratko O.S., Migal O.F. (2023) Implementation of artificial intelligence in the company's business activities. Economy and society. Issue No. 58. DOI: https://doi.org/10.32782/2524-0072/2023-58-81*
3. *Using artificial intelligence to increase the business value of information. URL: https://integralsolutions.pl/uk/%D1%96%D0%BD%D1%82%D0%B5%D0%BB%D0%B5%D0%BA%D1%82%D1%83%D0%B0%D0%BB%D1%8C%D0%BD%D1%96-*

%D0%B4%D0%B0%D0%BD%D1%96-%D1%83-%D0%B2%D0%B0%D1%81-%D0%BF%D1%96%D0%B4-%D1%80%D1%83%D0%BA%D0%BE%D1%8E/

4. *Derba VS (2024). Artificial intelligence as a tool for improving key business processes of the enterprise. Economic achievements: prospects and innovations. №8. DOI: https://doi.org/10.5281/zenodo.13284225*
5. *Kravchenko N. How artificial intelligence is used in Ukraine. URL: https://ms.detector.media/trendi/ post/33704/2023-12-10-yak-v-ukraini-vykorystovuyut-shtuchnyy-intelekt/*
6. *Kuziomko VM (2021). Possibilities of using artificial intelligence in the activities of modern enterprises. Economy and society. № 32. DOI: https://doi.org/10.32782/2524-0072/2021-32-67*
7. *Mogilevskaya OY, Slobodianyk AM, Sidak IV (2023). The impact of artificial intelligence on the Ukrainian and international economy. Kyiv Economic Scientific Journal. № 1. C. 45-52.*
8. *Ostapenko A. How brands use AI in marketing to conquer the market. URL: https://top-ai.com.ua/marketyng-ta-shi/yak-brendy-vykorystovuyut-ai-v-marketyngu-dlya-pidkorennya-rynku/?utm*
9. *Pidhaina E. Amazon, Uber, Spotify, JP Morgan, Netflix, Tesla, etc.: Successful and Failed Cases of Artificial Intelligence Engagement. URL: https://mind.ua/publications/20275247-amazon-uber-spotify-jp-morgan-netflix-tesla-toshcho-uspishni-ta-provalni-kejsi-zaluchennya-shtuchnogo?utm*
10. *Artificial Intelligence in the Ukrainian Banking Sector: Opportunity or Necessity? URL: https://forbes.ua/innovations/shtuchniy-intelekt-v-ukrainskomu-bankivskomu-sektori-mozhlivist-chi-neobkhidnist-30042024-20636?utm*
11. *Artificial intelligence in the Ukrainian banking sector: opportunity or necessity? URL: https://forbes.ua/innovations/shtuchniy-intelekt-v-ukrainskomu-bankivskomu-sektori-mozhlivist-chi-neobkhidnist-30042024-20636?utm*
12. *Artificial intelligence in Ukrainian business: from medicine to retail. URL: https://ai360.com.ua/shtuchnyy-intelekt-v-ukrainskomu-biznesi-vid-medytsyny-do-ryteylu/*
13. *Artificial intelligence: advantages of using it in business. URL: https://online.novaposhta.education/blog/shtuchnij-intelekt-perevagi-vikoristannya-v-biznesi*
14. *How AI is changing e-commerce: 8 examples. URL: https://wezom.com.ua/ua/blog/yak-shi-zminyuje-elektronnu-komertsiyu-8-prikladiv?utm*

Olha Rudachenko
ORCID: https://orcid.org/0000-0001-9597-5748
Dr. Sc. Ec, Associate Professor, Professor of the Department of Entrepreneurship & Business Administration
Vitalina Konenko
ORCID: https://orcid.org/0000-0002-1525-7736
PhD in Economics, Associate Professor, Associate Professor of the Department of Entrepreneurship & Business Administration
O.M. Beketov National University of Urban Economy in Kharkiv (Kharkiv, Ukraine)

INNOVATION SUSTAINABILITY OF REGIONS AND TERRITORIAL COMMUNITIES AS A COMPONENT OF SPATIAL DEVELOPMENT

https://doi.org/10.5281/zenodo.15707894

Abstract
The study examines the innovation sustainability of regions and territorial communities as a key element of spatial development. It emphasizes the necessity of an integrated approach to fostering innovation sustainability, encompassing economic, social, and managerial components to ensure the sustainable development of territories. The study demonstrates that achieving stable growth indicators requires economic and managerial transformations aimed at increasing resource use efficiency, reducing development asymmetry, improving the index of socio-economic progress, and promoting balanced spatial development. The author proposes the development of strategies to enhance innovation sustainability that are adaptable to changes in the economic environment and responsive to the challenges of globalization.

Keywords: *region, territorial community, innovation potential, regional innovation system, spatial development, digitalization.*

Introduction

The global economic crisis has resulted from the exhaustion of the traditional development model and serves as a harbinger of the emergence of new economic relations, models, and institutions. This situation necessitates a rethinking of approaches to ensuring the sustainable development of national economies, particularly at the regional level. Contemporary transformational processes – affecting both the global economy and domestic systems – are unfolding amid growing instability, rapid technological change, and new security challenges. This issue has become especially critical for Ukraine in the context of Russia's full-scale armed aggression. The war has not only caused widespread destruction of infrastructure, a reduction in production capacity, and the massive displacement of the population, but has also posed a serious threat to the socio-economic integrity and functionality of the regions.

Under such circumstances, fostering innovative regional sustainability becomes a key objective of national regional policy. A creative and innovative approach is essential to ensure the long-term flexibility, adaptability, and competitiveness of territories. Building innovation-driven resilience is not only a mechanism for overcoming the consequences of military conflict, but also a prerequisite for spatial development based on the effective use of regional potential, the development of human capital, and the adoption of technological solutions that can improve quality of life – even in conditions of uncertainty and risk. It is worth noting that Ukraine's innovation potential exceeds that of many countries. A strong scientific foundation and a well-developed educational system provide the basis for creating innovations. However, enabling the development of innovative initiatives across all sectors of economic and social life – and achieving sustainable economic growth through innovation – requires a comprehensive and coordinated approach.

Literature review

Most researchers (Alieksieienko, 2024; Kashchena et al., 2024; Oleksenko, 2020) considered innovations in the context of economic development imperatives, the need to ensure sustainable growth, competitive leadership and social orientation of economic processes. An inherent feature of such development is innovativeness, i.e., the

ability to implement innovations systematically and continuously. At the same time, the effective implementation of innovations is impossible without territorial linkage and creating an appropriate environment that ensures the dissemination and distribution of knowledge flows.

Solving environmental problems deserves attention both at the practical level, in terms of minimizing the negative impact on the environment, and at the scientific and theoretical level, in terms of building effective organizational and management systems for the use of natural resources. This issue is reflected in numerous scientific studies (Hlushenkova, 2019; Hryhoruk et al., 2024; Hres', 2021; Pryjmak, 2019; Davymuka, 2023).

To date, a sufficient number of reasonable views of researchers have been formed on the structure and development of the regional innovation system (RIS). For example, L. Oleksenko (Oleksenko, 2020) builds a model of RIS based on an integrated approach, which involves the formation of RIS as a set of subsystems of knowledge generation, transfer, commercialization and diffusion by combining participants in innovation processes, as well as integrating the cluster model and the triple helix model. Vorzhakova Y.P. (Vorzhakova & Muzykoryshko, 2023) considers the development of innovation systems in the sectoral context. Innovations and technological transformations taking place in different sectors of the economy demonstrate different rates, types and trajectories of implementation. Economic agents and organizations influence the development of innovations. According to Kashena N.B., Vasilishyn S.I., Rudenko S.V. and Nakisko O.V. (Kashchena et al., 2024), RIS can be defined as a two-valent system consisting of a subsystem of knowledge generation and creation (universities, research centers and institutes) and a subsystem of knowledge application (business structures, consumers). These authors also systematized services, platforms and models of cooperation that determine the development of RIS in the context of three areas: company cooperation; business development; and talent development.

Materials and Methods

Implementing sustainable development involves achieving the decoupling effect, i.e. reducing pressure on the environment by

reducing the use of resources. In most developed countries, this effect is achieved by introducing advanced innovative technologies. However, this result has not yet been observed in Ukraine.

Our country's economy is characterized by a combination of the introduction of advanced technologies of the sixth mode in specific industries and regions (including artificial intelligence, digitalization of production, financial and social processes, bioengineering) with the use of outdated technologies of the fifth and sometimes even the fourth mode (for example, in the infrastructure sector). This multi-modality is particularly evident at the regional level, demonstrating the unevenness of socio-economic development. It is because innovations cannot develop independently – it is necessary to create a favorable regime or form innovation systems at both the national and regional levels.

Forming a nationally oriented approach to the sustainable development of territories is becoming increasingly important for modern science and practice. The transformation of the socio-economic systems theory at the meso-level aims to create a methodological (conceptual) framework for managing real economic relations at the regional level.

The current state of Ukraine's economy, characterized by financial, resource and innovation instability at various levels of government, requires new approaches to developing regional economies.

The concept of the national innovation system (NIS) emerged in the late twentieth century as a response to the need for an adequate and clear understanding of the role of innovation in developing economic systems. The concept covers all components of the innovation process: innovations and scientific knowledge as the basis for economic development; institutional environment – a set of economic, legal, social and technological factors that determine the vector of innovation development. Today, the NIS concept is widely used for decision-making at both the macro and meso levels.

Summarizing researchers' approaches to the problems of formation and development of the NIS, we can identify several basic elements that reveal its economic essence: institutions, mechanisms and components of the national economic system.

Results and Discussion

Innovation activity at the national level covers the processes of creating and implementing products and services, the set of subjects of innovation activity, and the set of objects of innovation. Improvement of national innovation systems promotes the development of innovative initiatives by implementing non-linear, combinatorial models of interaction, in particular, cluster and network formations.

Figure 2.7 shows the main elements of the NIS, and the level of their elaboration determines the innovative sustainability of regional development.

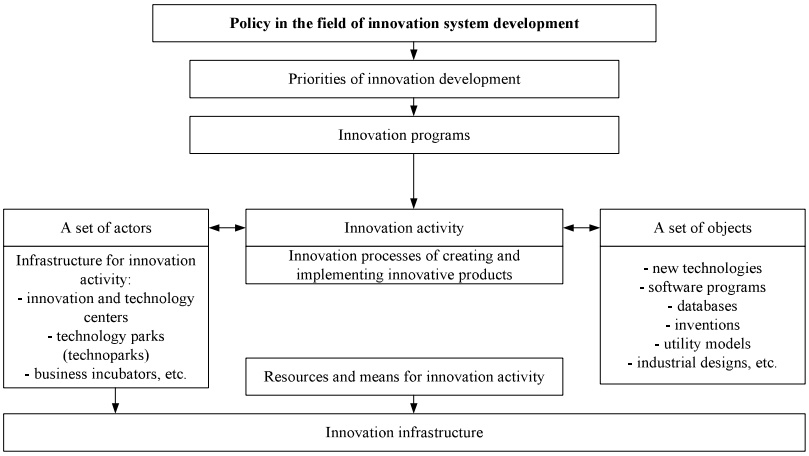


Figure 2.7 Elements of a national innovation system

Depending on the country, the NIS has its framework and characteristics. For further specification of the main approaches to the formation of innovative sustainability of territories, it is necessary to identify the main components of the NIS: state targeted policy in the field of innovation system development; mechanisms for determining priorities for innovation development at the national level; system of state and regional concepts of innovation development. In most studies, the NIS is presented as a two-tier system with clearly defined roles of the state and the private sector, a specific structure and orderly interaction of institutional elements. At the micro level, businesses commercialize innovative ideas based on

their research and development, while at the macro level, the state supports basic science and develops innovation infrastructure. However, this two-level system needs to be complemented by a meso-level system. The state's role in forming the NIS is to provide institutional support at the macro level for the processes of knowledge creation, use and dissemination. The role of territories as meso-level systems is to develop and implement specific mechanisms aimed at supporting the innovation activity of micro-level economic entities.

There is a need to form and develop regional innovation systems as a set of innovation actors and development institutions that create and disseminate knowledge, considering the peculiarities of territories' economic, social and spatial development. The regional innovation system not only forms the vector for further development of the region's innovation systems but also directly depends on the quality of functioning of the territorial systems. When solving the problems of national economic development, it cannot be perceived as a mono-object, as it is a complex multi-level and multi-subject system that functions based on both vertical and horizontal interactions. Therefore, the spatial paradigm is the basis for the sustainable development of both the national economy as a whole and specific economic entities. It considers the peculiarities of vertical ties between the center and the regions, horizontal (economic, social, political) ties between the territories, and geographical, historical and cultural peculiarities of the territories' development. We can formulate a definition of a regional innovation system, which means the ecosystem of innovations of the territory, including the "core" (center) of innovation activity and a set of institutional characteristics that ensure the creation of a favorable environment for innovation: interaction between the state, entrepreneurial innovation projects of the micro level of business and science, increasing the level of economic culture and trust between participants in innovation processes, and the development of human capital as a key element of innovation processes (Figure 2.8).

The main principles on which the process of formation and development of regional innovation systems should be based are:

– priority principle – priority implementation of projects for the socio-economic sustainability of the territory;

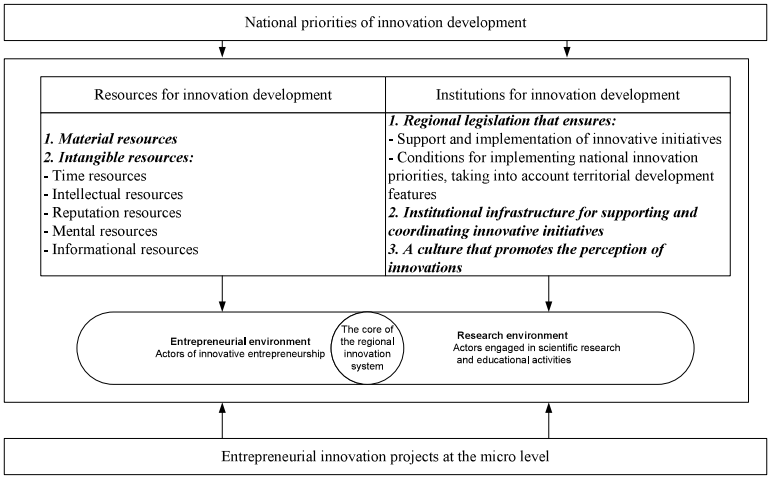


Figure 2.8 Elements of the regional innovation system

– the principle of spatial development – taking into account the natural, historical, national and socio-economic characteristics of the territory;

– the principle of goal setting and result orientation – regulation of innovations with a focus on significant socio-economic results;

– the principle of horizontal and vertical integration – coordination of actions at different levels and formation of cluster ties;

– the principle of balance – taking into account the interests of all participants in the innovation process and adherence to uniform rules;

– the principle of transparency – transparent relations for the realization of innovations and building trust;

– the principle of nudging – soft regulation that stimulates innovation activity;

– principle of uniformity – ensuring equal quality of socio-economic development of the territory.

It is worth noting that the transformation process of regional socio-economic systems is impossible without analyzing their current configuration, taking into account various factors. These include both endogenous and exogenous meso-level factors.

However, it is not enough to identify such factors – it is essential to identify the key components that influence the transformation of regions as spatial socio-economic units.

Given the length of its borders, the complexity and uneven development of its regions, it is necessary to consider each territory's specific features, the possibility of using the accumulated potential and searching for unrealized resources. The spatial approach is intended to increase the effectiveness of the socio-economic policy implemented in the regions by tapping into the potential of neighboring regions, particularly through forming new formal and informal ties between the territories and businesses.

In the most general sense, spatial development refers to progressive changes in the development and reproduction of natural resources, the location and internal structure of productive forces, population settlement, and the arrangement of the living environment, agreed upon at the global, national, regional, and local levels.

Spatial development also means progressive changes in the territorial organization of the country, which is the result of the state's activities to improve the population settlement and placement of infrastructure facilities on the territory.

From the methodological point of view, spatial development looks like this: the problem of complex socio-economic development of the country and regions is at the center; then regional development is considered, then territorial development, and all this is integrated within the spatial development framework.

The "State Strategy for Regional Development for the period up to 2027" defines spatial development as the improvement of the system of settlement and territorial organization of the economy, particularly through the implementation of an effective state policy of regional development. This interpretation resembles a return to Soviet rhetoric and to some extent reproduces the ideology of Soviet governance and state economic planning. The general idea is to improve or change the current system at macro and meso levels by addressing issues of settlement and resource use and improving the efficiency of organizational and managerial decisions at the government level.

Spatial development should be considered as the result of

financial, economic, organizational, entrepreneurial and other activities in a particular territory (of an entity or its part, or a combination of different entities or their separate parts), provided that all parties to such activities achieve a positive socio-economic effect.

Due to interregional interaction and the interaction of business entities operating in different regional jurisdictions, it is possible to achieve a synergistic effect, or spatial synergy, within the spatial development framework.

Thus, Alieksieienko V.Yu. (Alieksieienko, 2024) in his works considers spatial synergy as an information approach to the definition of economic space. It is about the exchange of information and self-organization of complex systems as a property of synergy, which describes nonlinear processes in different environments, including social ones, in a state far from equilibrium. In other words, socio-economic systems in a state of spatial synergy are unstable. This statement is controversial and difficult to prove, but it has the right to exist.

Two main aspects of the development of meso-level socio-economic systems can be distinguished:

– the ability to function while maintaining or restoring the basic parameters of the system;

– the ability to develop through significant changes in its qualitative and quantitative characteristics.

The use of ecological and economic resources to ensure sustainability stimulates economic growth, which can be characterized as a qualitative rather than a quantitative category.

Thus, recognizing space as an endogenous factor of sustainable socio-economic development determines the need to consider the peculiarities of population settlement, environmental factors and territorial organization of the economy when developing management measures. Management of innovation sustainability is part of the strategic priorities for improving the quality of the economic environment, the population's welfare and the growth rate of GRP. Innovation sustainability depends on structured work involving executive authorities and representatives of business and science, which results in a sustainable innovation climate in the region (Figure 2.9).

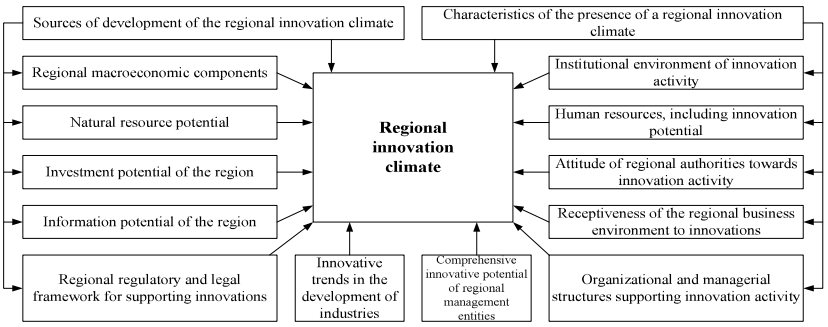


Figure 2.9 Structural components of the regional innovation climate

The above concepts' generalization and definitions allowed us to create a structural and logical scheme for forming the category of "sustainable spatial development" (Figure 2.10).

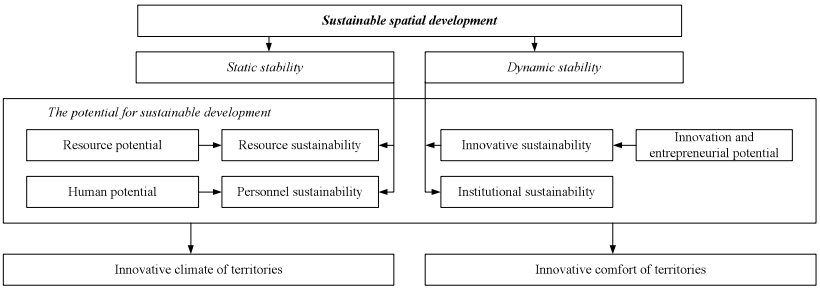


Figure 2.10 Structural and logical diagram of the category "sustainable spatial development"

One of the ways to improve the quality and level of innovation sustainability of the territory is the activities of the authorities aimed at:

– information support (at the expense of budgetary funds) for strategic analysis of possible areas of innovation to increase the competitiveness of specific enterprises in the region;

– development of training programs for innovation managers in educational institutions of the region for the implementation of innovation processes, development of innovative production;

– inclusion of specific enterprises in the region in implementing regional and state innovation programs.

In addition to the spatial and resource approaches, it is proposed to use the typological, historical and integrated approaches in analyzing the formation patterns and implementation of strategies for innovative development of territories.

The typological approach allows for grouping territories based on various classification features and formulating adapted recommendations to solve the identified problems.

The historical approach is based on the need to consider the results of the historical and genetic analysis of the development of the territorial development strategy. An integrated approach is based on taking into account the set of interconnections and mutual influence of territories on the state of the national and regional economy, the dynamics of indicators of financial and economic activity of residents, as well as the content of reproductive, sectoral, interregional and intraregional proportions.

Conclusions

The formation of innovative sustainability in regions requires an integrated approach that encompasses economic, social, and managerial dimensions to ensure sustainable development.

Achieving stable socio-economic growth necessitates the implementation of economic and managerial transformations aimed at increasing the efficiency of resource use, reducing development asymmetry, and promoting balanced territorial development. Special attention should be given to addressing disparities and uneven development across regions, which includes equalizing economic and social indicators, enhancing conditions for the growth of small and medium-sized enterprises, and fostering a favorable investment climate.

It is crucial to develop and implement strategies that enhance innovation sustainability – strategies capable of adapting to changes in the economic environment and effectively responding to the challenges posed by globalization.

References:

1. *Alieksieienko, V.Yu. (2024), "Innovative development in post-war reconstruction at the meso-level", Naukovyi visnyk Uzhhorodskoho Universytetu. Seriia Ekonomika, vol. 1, no. 63, pp. 59-65.*
2. *Hlushenkova, A.A. (2019), "Using information and communication technologies as a tool for developing innovative potential", Ekonomika. Menedzhment. Biznes, vol. 4, no. 30, pp.64-69.*
3. *Hryhoruk, P., Zavhorodnia, T., Tkachenko, I. and Petrushanskyi, N. (2024), "Forecasting trends in the development of innovative activity of regions of Ukraine", Modeling the development of the economic systems, vol. 4, pp. 250-257.*
4. *Kashchena, N.B., Vasylishyn, S.I., Rudenko, S.V. and Nakisko, O.V. (2024), "Formation of an innovation ecosystem of sustainable economic recovery and development of regions to strengthen the national security of Ukraine", Ukrainskyi zhurnal prykladnoi ekonomiky ta tekhniky, vol. 9, no. 3, pp. 256-261.*
5. *Tulchynska, S. and Havronskyi, A. (2024),"Promising directions of innovative development of territories in modern conditions", Modeling the development of the economic systems, vol. 2, pp. 116-120.*
6. *Vorzhakova, Yu. P. and Muzykoryshko, V.O. (2023), "Features of the application of digital transformation to improve business processes of enterprises", Modern Economics, vol. 41, pp. 24-30. DOI: https://doi.org/10.31521/modecon.V41(2023)-04*
7. *Hres', H. (2021), "Approach to the implementation of flexible organizational structures", Ekonomika ta suspil'stvo, vol. 34. DOI: https://doi.org/10.32782/2524-0072/2021-34-61*
8. *Pryjmak N.S. (2019), "Classification of resistance to change and its assessment within the framework of the enterprise change management system", Efektyvna ekonomika, vol. 6. DOI:10.32702/2307-2105-2019.6.67*
9. *Davymuka, S.A. (2023), "Innovative imperative of the strategy for the reconstruction of Ukraine", Regional economy, vol. 3, pp. 5-17.*
10. *Oleksenko, L.V. (2020), "Innovative infrastructure as a factor of intensification of innovation activity in the leading countries of the world", Economic management: theory and practice, pp. 223-242.*
11. *Rudachenko O., Konenko V. (2024) 3.17 Analysis of the current state of digital transformation of business processes in business activities of Ukraine. Exploring the digital landscape: interdisciplinary perspectives. Monograph. The University of Technology in Katowice Press, Katowice, Silesia Province, Poland. 1052 p.*

Anatoly Telnov
ORCID: https://orcid.org/0000-0002-1859-106X
Doctor of Economic Sciences, Professor
Serhiy Tretko
ORCID: https://orcid.org/0009-0000-8359-1608
Graduate of the Third (Scientific) Level in the Specialty "Marketing"
Chair of Marketing
Khmelnytskyi National University (Khmelnytskyi, Ukraine)

MECHANISM OF INTERACTION OF INNOVATION AND INFORMATION SUPPORT OF ENTREPRENEURIAL ACTIVITIES OF COOPERATIVE ASSOCIATIONS AS A CONDITION FOR SUSTAINABLE DEVELOPMENT OF SOCIO-ECONOMIC SYSTEMS

https://doi.org/10.5281/zenodo.15707937

Abstract
The role and significance of cooperative associations as a determining condition for the development of entrepreneurial activity is substantiated. The main principles of the activity of cooperative associations are determined. The functions of cooperation are established and their characteristics are presented. A mechanism for the interaction of innovations and information support for the entrepreneurial activity of cooperative associations is proposed with its structuring and justification of its constituent elements. The significance of the interaction of innovations and information support for the entrepreneurial activity of cooperative associations is argued. The content of the information support of the mechanism is highlighted. The types of innovations in cooperation are determined and their characteristics are presented. Examples of the use of innovations in the entrepreneurial activity of cooperative associations are given. The importance of applying the proposed mechanism for the development of cooperative associations and the sustainable development of socio-economic systems is substantiated. A conclusion was drawn regarding the need to improve the legislative framework for the successful development of entrepreneurial activities of cooperative associations.

Keywords: *cooperatives, cooperative associations, innovations, information support, socio-economic systems, mechanism, entrepreneurial activity.*

Introduction

Changes in the socio-economic system have led to an increase in the role of cooperation in entrepreneurial activity. Today, cooperation is a necessary economic institution of the socio-economic system, as well as an important form of entrepreneurial activity.

In the context of the spread of globalization and informatization processes, many issues arise related to changing the methodology for developing the cooperative sector, in particular ensuring self-government of cooperative associations, their functioning according to international principles of cooperation.

Cooperatives as a unique type of socio-economic organization of mutual assistance of people, as well as a special type of enterprise, require the development of an effective mechanism for the interaction of innovations and information support in order to achieve sustainable development.

Materials and Methods

The study used the information search method – to analyze the state of the research problem based on the study and generalization of scientific works of scientists and Internet sources; the classification method – when identifying the principles and functions of the activities of cooperative associations; system analysis – to substantiate the relationship between the constituent elements of the mechanism of interaction of innovations and information support for the entrepreneurial activity of cooperative associations; the abstract-logical method – to formulate the conclusions of the study.

Literature Review

The work (Lupenko et al., 2016) substantiates the theoretical and methodological principles of institutional support for the development of entrepreneurial formations and cooperative relations in agriculture. The formation of a socially oriented economy and the implementation of the concept of social responsibility of entrepreneurship are assessed, and the directions for creating

institutional and economic conditions favorable for the development of the entrepreneurial environment in rural areas are substantiated.

(Lashch, 2019) proposed a systematization of the prerequisites for the emergence and development of cooperatives, arranging them into five corresponding groups, analyzing each of the factors of historical, socio-economic, psychological and ideological aspects.

The article (Yarish & Bugaevska, 2018) is devoted to the analysis of the world experience of the cooperative movement, the definition of the principles of cooperation and the features of their transformation, the study of the main stages of the development of consumer cooperation in different countries of the world, the definition of areas of activity on the path of modernization of consumer cooperation, as well as the development of consumer cooperation in Ukraine.

(Visin et al., 2017) analyze the main trends in the development of the international cooperative movement at the present stage. The authors examined the modern structure, forms and methods of activity of the International Cooperative Alliance as an influential economic and political force that promotes the global development of the cooperative movement, protects the values and principles of cooperation, and cares about the development of humanity, economic and social progress.

(Panteleymonenko, 2024) highlights the functional features of entrepreneurs' cooperatives, provides general information about the business models of such cooperatives. Offers combinations – B2B-B2C business model. When planning the activities of an entrepreneurs' cooperative, the author uses the business model canvas of A. Osterwalder, which can be the basis for building an effective cooperative strategy, which as a result should affect the profitability of the personal business of the cooperative members.

An important and relevant area of modern research is the cooperation of agricultural producers.

Thus, (Abramova, 2019) analyzes the experience of cooperation of agricultural producers in the countries of the European Union.

(Buryk, 2019) examines the problems of servicing cooperation of rural areas taking into account the experience of the policy of the EU states.

However, given the large number of studies in the field of

entrepreneurial activity of cooperative associations, there are many issues that require further development and study, taking into account the impact on the sustainable development of socio-economic systems.

Results and Discussion

Cooperation is a voluntary pooling of efforts and resources of entities interested in achieving certain socio-economic results that can be obtained only or more quickly through group action.

The International Cooperative Alliance (ICA) coordinates international cooperative activities. The ICA pays serious attention to the problems of cooperative democracy and strengthening the unity of the ranks of the international cooperative movement. According to the definition of the ICA, a cooperative is an autonomous association of persons who have united on a voluntary basis to meet their common economic, social and cultural needs and aspirations and have created a democratically controlled enterprise that is in common ownership.

The tasks of the ICA, national cooperative alliances, sectoral groups, cooperatives and individual shareholders at the current stage are to implement the following components:

1. The cooperative business model has advantages due to the possibility of participation (participation).
2. The cooperative business model creates economic, social and environmental sustainability (Sustainability).
3. The cooperative business model, being identical (defined by the values and principles of cooperation), puts the person at the heart of the decision-making process and advocates fair play in the global economy (identity).
4. The cooperative business model requires guaranteed favorable legal norms for its growth (legal framework).
5. The cooperative business model requires cooperative capital with strict member control (Capital).

All these five components of the project are interconnected and constitute its integrity, Figure 2.11.

The principles of activity of cooperative associations are as follows:

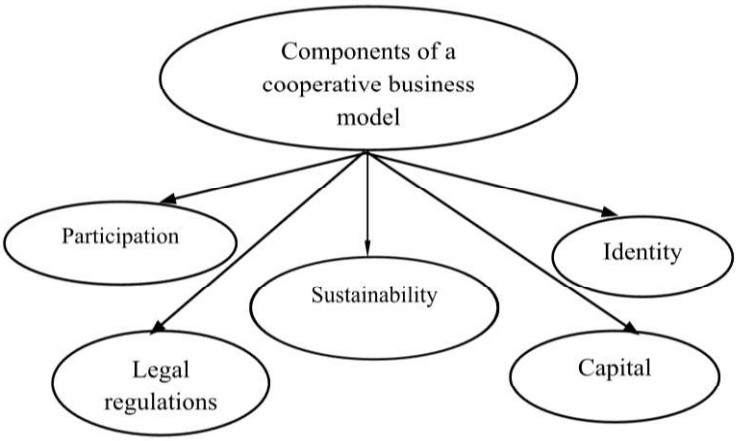


Figure 2.11 Components of the cooperative business model
Source: compiled by the authors based on (Visyn et al., 2017)

1. The main types and directions of economic activity of cooperatives are determined by each cooperative independently, based on the basic economic principles of cooperation, that is, protection of the economic and social interests of cooperative members on the basis of social justice, mutual assistance and cooperation.

2. The principle of identity – the role of cooperative members as co-participants and clients of their own cooperative or cooperative enterprise.

3. The principle of goal-setting – based on economic and social interests, cooperatives are created to ensure a certain task, achieve a certain economic goal.

4. The principle of self-help and cooperation as the basis for ensuring economic interests.

5. The cooperative principle of organizing production and management, in particular, the equal status of all members.

The highest governing body is the general meeting, direct or indirect participation of all members in controlling the company.

The need for coordination of new production entities dictates the need for the emergence and development of processes of their association. As a result, cooperative associations are created and

integration processes occur, which increases the level of economic activity.

Thus, cooperation is a form of organization of production, in which business entities participate in related production processes while maintaining legal independence.

The functions of cooperation are presented in Table 2.16.

Table 2.16

Functions of cooperation

Function	Characteristic
Economical	Social production at the micro and meso levels, meeting the needs of society members
Organizational	A corporate-type enterprise is created by a voluntary association of material resources of commodity producers, owners
Institutional	Subject of collective management of institutional relations
Social	Social capital, ensuring the needs of society members
Property relations	Form of use of property – collective distribution of profits in proportion to participation in production
Labor organization	Collective, private
System	Self-organization, single goal, rational use of resources, provision of members
Process	Complementarity of technological processes

Source: compiled by the authors

The paper proposes a mechanism for the interaction of innovations and information support for the entrepreneurial activities of cooperative associations (Figure 2.12).

The methodological basis of the proposed mechanism is the principles and functions of cooperative activity in entrepreneurial activity.

The directions of implementation of the mechanism of interaction of innovations and information support of entrepreneurial activities of cooperative associations are focused on the following approaches:

– economic;

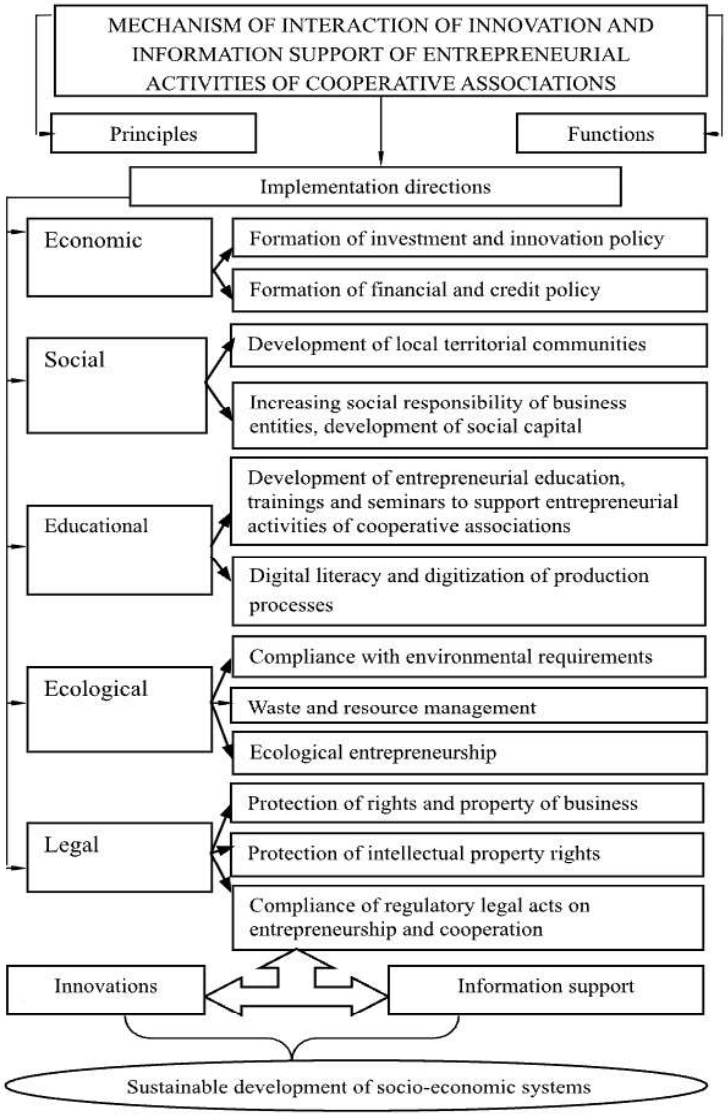


Figure 2.12 Mechanism of interaction of innovations and information support of entrepreneurial activities of cooperative associations

– social;
– educational;
– environmental;
– legal.

These directions contain specific measures that allow to implement the mechanism of interaction of innovations and information support of entrepreneurial activity of cooperative associations.

The important thing in the mechanism is the interaction of innovations and information support of entrepreneurial activity of cooperative associations. In the marketing research conducted by us (Telnov & Tretko, 2025) a comprehensive information support was proposed, which provides a high level of market analytics, customer loyalty and competitive environment. The information support was a marketing information system (MIS), built on the basis of digital technologies and sources of primary and secondary information.

Information support for the entrepreneurial activities of cooperative associations includes the following elements:

– CRM systems;
– information software;
– technical base.

The use of data analytics, CRM systems, statistical sources and technical infrastructure allows for in-depth market analysis, as well as improving interaction between cooperatives and clients.

Innovations in cooperation involve the introduction of new methods, technologies, organizational structures and ideas into cooperative structures in order to improve their efficiency and ensure sustainable development. Innovations help cooperatives adapt to market changes, meet the needs of members and ensure sustainable development.

Types of innovations in the entrepreneurial activities of cooperative associations are presented in Table 2.17.

The use of innovations in the entrepreneurial activities of cooperative associations contributes to:

– increasing production efficiency, reducing costs;
– expanding the range, more fully meeting the needs of cooperative members and other consumers, which will increase demand and profit;

Table 2.17

Types of innovations in the entrepreneurial activities of cooperative associations

Type of innovation	Characteristic
Technological innovations	Introduction of new technologies in production, for example, automation, use of IT tools for management and communication
Organizational innovations	Changes in cooperative structures, such as the introduction of new forms of management, division of labor, or partnership relationships
Innovation in products (services)	Developing and offering new products or services that meet the needs of cooperative members and other consumers
Innovations in marketing and sales	New methods of promoting and selling products (services), for example, using online marketing, expanding the sales network
Innovations in financing and investment	Changing financing models, attracting new sources of financing, investing in new technologies and developing the cooperative

Source: compiled by the authors

– increasing competitiveness, ensuring compliance with market requirements;

– increasing the satisfaction of cooperative members;

– ensuring the attractiveness of cooperative associations for new members and partners.

Innovations in the cooperative can include the use of social networks, websites and other online tools to promote their goods and services; the introduction of automated systems and technologies in production (using 3D printing to produce goods or new methods of processing raw materials); the creation of online platforms; and the involvement of young specialists to introduce new knowledge and technologies into the cooperative.

Therefore, innovations are an important factor for the development of cooperative associations, and their implementation can bring significant benefits to cooperative members, as well as to ensure the sustainable development of socio-economic systems.

It is also necessary to take into account that the effectiveness of the proposed mechanism is significantly influenced by external factors. The need to develop cooperative relations between business

entities is primarily due to the changes taking place in production at the present stage.

Thus, in the external environment it is necessary to take into account the intensification of competition on a global scale due to the development of transport, information technology and means of communication; the strengthening of the tendency to fragmentation of markets due to the differentiation of consumer demand. External changes cause an appropriate reaction of corporations that adapt to new conditions.

Entrepreneurial cooperatives have organizational and functional features compared to commercial enterprises. These features consist in an unlimited number of co-owners, who are also users of the cooperative's services. That is why cooperatives operate on a non-profit basis. Also, for the successful operation of cooperative associations, the characteristics of the clients with whom they cooperate should be taken into account. This necessitates the formation of appropriate business models, which are the basis of an effective strategy for the successful operation of entrepreneurial cooperatives.

The successful development of entrepreneurial activity of cooperative associations depends not only on the economic structure of the country, but also on the legislative framework that exists in the country. It must be stated that there is a certain imperfection of the existing legal field of cooperation. Laws and other regulatory acts should strengthen state guarantees regarding the independence and autonomy of cooperative associations, providing them with the opportunity to carry out a wide range of entrepreneurial activities, contributing to the transformation of cooperative societies into competitive entities.

Creating legal, economic, organizational and social conditions for cooperative entrepreneurship will enable Ukraine to emerge from the deep economic crisis. That is why it is necessary to create fundamental methodological, theoretical and methodological foundations for the formation of cooperative entrepreneurship, in particular regarding cooperative relations of business entities.

The issues of improving the skills of specialists and managers of cooperatives in management, marketing, financial work, and personnel training are especially relevant today. This direction has

also recently become a priority, which is explained by the complexity of managing a cooperative in the conditions of a highly intensive economy and the path to sustainable development. To train cooperative personnel, special educational programs are developed and implemented, support is provided to cooperative educational institutions, round tables, seminars, conferences are held to exchange experience in cooperative activities, information is collected and summarized about new types of services and achievements of cooperative management that exist in different countries, etc.

Almost all countries in the world use a preferential system of taxation of cooperatives, since cooperation is primarily interested in social interests. Cooperatives are aimed at improving the standard of living of the population and its social security.

Conclusions

Summarizing the conducted research, it is concluded that with the emergence of private producers, owners who have common economic interests in conducting economic activities, cooperation has become a logical stage of further development of the economy. This opens up new opportunities for the creation of organizational structures of an integration type, built on the principles of material interest, the implementation of economic choice opportunities to ensure the development of socio-economic systems. Active development of the economy, modern transformation processes create the need to introduce innovations to increase the efficiency of the activities of cooperative associations. For the further development of cooperative associations, it is advisable to expand the range of existing cooperatives of entrepreneurs, and the management bodies of existing cooperatives need to apply innovative methods of planning activities. For this, it is important to take into account foreign scientific and practical approaches that have shown their effectiveness in many countries of the world.

Thus, cooperative associations play an important role in the development of entrepreneurship in Ukraine and are one of the ways to support its competitiveness in the market. Due to the advantages that cooperatives have, they are valuable partners for entrepreneurs. The development of cooperative activities in Ukraine can stimulate the growth of social entrepreneurship and the solution of social problems, sustainable development of socio-economic systems.

References:

1. *Development of entrepreneurship and cooperation: institutional aspect: monograph / [Lupenko Yu. O., Malik M. Y., Zayats V. M. et al.]. – K.: NNC "IAE", 2016. – 432 p.*
2. *Lashch A. S. (2019). Cooperation: prerequisites for emergence and development. Effective economy. No. 8. DOI: 10.32702/2307-2105-2019.8.151*
3. *Yarish, O. V., Bugaevska, A. I. (2018). Modern vector of development of consumer cooperation: foreign and domestic experience. Scientific Bulletin of the Poltava University of Economics and Trade. No. 2 (87).*
4. *Visyn, V. V., Visyna, T. M., Kravchuk, P. Ya. (2017). Main trends in the development of the international cooperative movement at the present stage. Scientific Bulletin of Uzhhorod National University. Vol. 15, no. 1, pp. 54-59.*
5. *Panteleymonenko, A. (2024). Entrepreneurial Cooperatives and Their Business Models. Economic Space, (191), 315-320. https://doi.org/10.32782/2224-6282/191-52 (Accessed 29 April 2025)*
6. *Abramova, I. V. (2019). Experience of Agricultural Producers' Cooperation in the European Union Countries. Cooperative Readings: Zhytomyr: Zhytomyr National Agroecological University, pp. 83–87.*
7. *Buryk, Z. M. (2019). Rural Service Cooperation: Experience of EU Countries' Policies. Investments: Practice and Experience. No. 7 (96–102).*
8. *Telnov, A. S., Tretko, S. V. (2025). Formation of a marketing information system for the development of the economic potential of an enterprise in the digital economy. Effective Economy. No. 5. URL: https://www.nayka.com.ua/index.php/ee/issue/view/222 (Accessed 26 May 2025)*

Nataliia Yevtushenko
ORCID: https://orcid.org/0000-0002-4752-6742
Candidate of Economy Sciences, Associate Professor, Head of the Department of Finance
Olesia Skliarenko
ORCID: https://orcid.org/0000-0003-3412-6560
Candidate of Philological Sciences, Associate Professor at the Chair for Foreign Philology, Translation and Methods of Education
Dmytro Stetsenko
ORCID: https://orcid.org/0009-0000-0746-6381
Lecturer at the Department of Finance
Hryhorii Skovoroda University in Pereiaslav
(Pereiaslav, Ukraine)

INCLUSIVENESS THROUGH DIGITAL TECHNOLOGIES: ENSURING EQUAL ACCESS TO INNOVATION

https://doi.org/10.5281/zenodo.15707991

Abstract
The article discusses the concept of inclusiveness through digital technologies that provide equal access to innovations. Particular attention is paid to the possibilities of digital tools to overcome barriers to access to modern technologies for different social groups. Examples of the implementation of inclusive technologies in education, healthcare and public life are studied. The role of public and private initiatives in ensuring equal opportunities for all citizens, including people with disabilities, is defined. The importance of supporting an inclusive environment in the digital society to achieve social justice and equality is emphasized.

Keywords: *digital technologies, digital finance, equal access, innovation, social justice, accessibility, inclusive society, digitalization.*

Introduction

Inclusion is increasingly recognized as one of the most critical social values in today's rapidly evolving global landscape. It reflects society's commitment to ensuring that all individuals, regardless of their background, abilities, or circumstances, have equal opportunities to participate fully in social, economic, and political life. As the world becomes more interconnected and digitized, digital technologies are seen as key enablers of inclusivity, offering unprecedented opportunities for marginalized groups such as people with disabilities, the elderly, and individuals living in underserved areas. However, these advancements also present new challenges and risks, especially concerning unequal access to technological innovations.

The digital revolution, fueled by continuous technological advancements, has the potential to bridge societal gaps and transform the way we work, communicate, and engage with the world. Yet, despite the promises of digitalization, one of the most pressing issues remains the disparity in access to these innovations. This digital divide is a growing concern, as it threatens to exacerbate existing inequalities within societies. Those without reliable access to the internet, necessary devices, or the requisite skills to navigate these technologies face significant barriers in education, employment, healthcare, and participation in public life. As a result, rather than acting as an equalizer, digital technology can inadvertently widen social gaps, creating a new form of exclusion.

The importance of addressing digital inequality cannot be overstated, particularly in the context of sustainable and inclusive development. As countries strive to create more equitable societies, the effective integration of digital technologies into daily life is essential for ensuring that all citizens, regardless of their circumstances, can benefit from innovation. Digital inclusion, therefore, is not just a matter of providing access to technology, but also of empowering individuals with the skills and opportunities needed to leverage these tools for their personal and professional development.

This article examines the role of digital technologies in promoting inclusiveness, with a focus on their potential to provide equal access to innovation. The analysis delves into the current challenges

surrounding digital inequality, highlighting key areas where disparities exist and exploring solutions to overcome these barriers. Special attention is given to the role of inclusive platforms, which aim to break down existing barriers and offer access to resources that were previously out of reach for many. These platforms not only enable individuals to access education and healthcare, but also provide avenues for entrepreneurship, civic participation, and social integration.

However, while digital technologies hold the promise of greater inclusivity, it is crucial to note that inclusivity is not an automatic byproduct of technological development. The introduction of digital tools and services must be accompanied by intentional efforts to create an accessible environment for all. Achieving inclusiveness requires a multi-faceted approach that involves cooperation and active engagement from the state, private businesses, educational institutions, and civil society organizations. These stakeholders must work together to address systemic barriers, ensure equitable access to digital resources, and promote the digital literacy necessary for individuals to navigate the digital world.

Moreover, the implementation of inclusive digital technologies must be responsive to the diverse needs of different social groups. For example, people with disabilities often require specific technological solutions that cater to their unique needs, such as screen readers for individuals with visual impairments or voice-activated devices for those with mobility challenges. Similarly, older adults may face challenges in using new technologies due to a lack of familiarity or digital skills. Targeted interventions, such as accessible design principles, training programs, and user support services, are essential to address these challenges and ensure that no one is left behind in the digital age.

In conclusion, while digital technologies have the potential to significantly enhance inclusivity, their true impact can only be realized through deliberate and coordinated efforts to ensure that everyone has equal access to the opportunities they offer. This requires not only the provision of affordable and reliable digital infrastructure but also the development of policies and initiatives that prioritize inclusiveness. As we continue to advance into the digital future, it is essential that we remain committed to the principle of

equal access, ensuring that innovation benefits all segments of society and contributes to a more just and equitable world.

Materials and Methods

The study is based on the analysis of theoretical aspects of inclusiveness through digital technologies, as well as on specific examples of their application in different countries. The methodology includes a comparative analysis of successful cases of using inclusive technologies, studying regulations and initiatives aimed at ensuring access to digital innovations. Programs and platforms aimed at supporting people with disabilities in education, work, healthcare, and social activities were studied.

To evaluate the effectiveness of digital technologies in ensuring equal access to innovations, the methods of content analysis, analysis of social survey data, and interviews with experts in the field of digital inclusion were used. A comparative analysis of national digitalization strategies in the context of access to innovations was also used.

Results and Discussion

While the Internet and modern digital tools continue to become increasingly widespread, a significant portion of the population faces barriers to accessing technology. These barriers include infrastructural limitations, economic barriers, and educational gaps. In many rural and remote areas, there is insufficient access to high-speed Internet, which hampers the ability of individuals to take advantage of the opportunities offered by digital innovation. Economic barriers, including low purchasing power, make it difficult for many to afford modern devices or access paid digital services. Furthermore, insufficient digital literacy among certain social groups, such as the elderly and those from lower-income groups, further deepens the digital divide. These factors together contribute to an increasing level of social exclusion, limiting individuals' opportunities for professional development, education, and participation in public life. Digital technologies have the potential to serve as powerful tools for addressing these inclusion challenges by providing equal access to information, services, and opportunities for self-realization. Key areas where digital technologies can have a transformative impact include e-governance and public services,

educational platforms, telemedicine and digital healthcare, as well as e-commerce and remote work platforms. E-governance, for instance, allows citizens to access public services online, reducing bureaucratic procedures and making these services more accessible to all, regardless of their place of residence. Educational platforms, including online courses and open educational resources, help overcome geographical barriers and provide access to knowledge even in the most remote regions. Digital healthcare, through telemedicine and remote health monitoring, enables individuals in underserved areas to receive medical care. Moreover, platforms for e-commerce and remote work create opportunities for people from various social backgrounds to engage in economic activities. Digital transformation thus opens up new possibilities for innovation in social policy and the economy.

The integration of advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT), and big data allows for the development of personalized solutions that cater to the diverse needs of different groups of people. These technologies facilitate the creation of adaptive systems capable of responding quickly to user needs, ensuring that equal access to resources is provided. However, despite the obvious advantages, there are still several challenges that need to be addressed to ensure equal access to digital technologies. The uneven distribution of the network, especially in regions with low economic development, remains a significant obstacle to integrating these territories into the digital space. Additionally, many countries and organizations face funding constraints, which hinder efforts to modernize infrastructure and enhance digital literacy, both of which are key to inclusivity. The availability of modern technologies and their effective use hinges on users' knowledge. Educational gaps, particularly in terms of technical education and training, especially for older individuals, are crucial factors for enabling effective interaction with digital tools. Social barriers, such as resistance to new technologies and prevailing stereotypes, also impede the active adoption of digital innovations among certain social groups. The issue of equal access to innovation is one of the most important in the context of modern digital development.

In a world where technology is evolving rapidly and becoming

increasingly complex, it is crucial to ensure that every citizen, regardless of their social, economic, or physical status, has the opportunity to benefit from innovation. There are several ways to address this issue, including through infrastructure development, policy reforms, educational initiatives, and support for digital inclusion (World Bank Group, 2016). One of the primary ways to address the problem of equal access is ensuring universal access to the Internet. Today, access to high-speed Internet is a critical factor in the successful implementation of innovations across various sectors such as education, healthcare, employment, and even social services. To tackle this issue, it is necessary to expand high-speed Internet coverage, particularly in rural and remote areas where access is limited (OECD, 2020). Investments in infrastructure to support the latest technologies, such as 5G and fiber-optic networks, are essential, as these technologies provide higher data transfer speeds and reduce latency (ITU, 2021).

Additionally, ensuring access to the Internet for socially disadvantaged groups through subsidies or discounted services for low-income individuals is vital for closing the digital gap. Equally important is the creation of inclusive platforms that enable users with different needs to interact with digital technologies easily. Developing accessible websites and mobile apps for people with disabilities is an important step toward ensuring equal access to innovation. To achieve this, it is necessary to develop interfaces that are adapted for people with disabilities, including individuals with visual impairments (such as voice prompts and font enlargement options) and hearing impairments (such as subtitles and sign language translation). Implementing universal design – an approach that involves creating products and services accessible to as many users as possible, including those with different physical or cognitive abilities – can further enhance digital inclusivity (UNESCO, 2020). Creating open digital platforms that allow independent developers to make improvements and adapt technologies to meet specific needs is another significant step toward fostering inclusivity (European Commission, 2020). Public policy and business initiatives also play a critical role in addressing the issue of equal access to innovation. Effective strategies include introducing digital learning programs for various demographic groups, such as youth, the elderly, individuals

with disabilities, and other vulnerable populations (United Nations, 2016). Additionally, investing in digital literacy programs is crucial, as government-led initiatives that teach citizens basic digital skills are not only important for their integration into the digital society but also for the development of innovative competencies (World Bank Group, 2016). Developing initiatives that support startups and social enterprises focused on creating inclusive technologies, such as microcredit programs for social enterprises or grant programs for innovations in social inclusion, can also play a crucial role (OECD, 2020).

Integrating inclusiveness into national digitalization strategies is necessary to ensure that inclusivity is not seen as a separate project but as part of a broader state digitalization policy. Cooperation between the public and private sectors is essential to achieving equal access to digital technologies. The state should not only stimulate the development of technologies but also create conditions that enable all citizens to benefit from them. Global and local initiatives supporting inclusive technologies, such as funding for startups or corporations developing accessible technologies, should be encouraged. It is equally important to involve businesses in social responsibility initiatives to ensure that companies invest in projects aimed at improving access to innovation for vulnerable groups (World Bank Group, 2016). Through these efforts, both public and private sectors can collaborate to bridge the digital divide and promote equal access to the transformative power of technology.

Conclusions

The issue of ensuring equal access to innovation is one of the most pressing in the context of global changes taking place in the digital society. Digital technologies, despite their great potential, can create new barriers for certain groups of people, especially for people with disabilities, the elderly, and members of socially vulnerable groups. To ensure equal access to innovations, a number of comprehensive and coordinated actions need to be taken by governments, civil society, business, and international organizations.

The first thing to note is the importance of developing digital infrastructure as the basis for access to modern technologies. Although many countries have already made significant progress in digitalization, the problems of Internet access in remote regions, as

well as high connection costs, still remain significant barriers for some categories of the population. Successful examples from countries such as South Korea and Estonia demonstrate the importance of universal access to high-speed Internet as a critical element of ensuring equal opportunities for everyone.

The second important step is to create accessible digital platforms and interfaces adapted to the needs of people with disabilities. Inclusive design, which includes opportunities for people with hearing, visual, motor, or cognitive impairments, can greatly facilitate the integration of these people into the digital society.

Political will and strategic government initiatives are essential to ensure access to innovation. The development and implementation of national digitalization strategies should take into account inclusiveness at all levels, from regulating access to technology to stimulating the development of inclusive startups. Programs aimed at digital literacy should be accessible to all segments of the population. Particular attention should be paid to organizing training courses for people with disabilities, as well as ensuring financial accessibility for members of socially disadvantaged groups.

One of the key components of the success of inclusiveness is active interaction between the public and private sectors. Investing in the development of inclusive technologies and supporting innovations aimed at improving access to modern solutions for all should be part of corporate social responsibility. Private companies can not only develop technologies but also provide funding for them through partnerships with government agencies and non-governmental organizations.

It is important to note that ensuring equal access to innovation is not only a technical issue, but also a cultural one. Spreading knowledge about the possibilities of digital technologies among the population, especially among those who have limited access to information resources, is the basis for building a culture of inclusion. Societies should recognize the importance of creating conditions for the full participation of all citizens in digital life, without exception or restriction.

Taking all these factors into account, we can conclude that the path to an inclusive society through digital technologies requires a comprehensive approach that includes not only the development of

technological solutions but also their adaptation to the real needs of users. This requires efforts on the part of governments, businesses, educational institutions, public organizations, and every citizen. Only under such conditions can we ensure equal access to innovations, which will become the basis for a fair and equitable digital society.

Digital technologies have the potential to become a powerful tool for ensuring inclusiveness and equal access to innovation.

Thus, ensuring inclusiveness through digital technologies is a challenge for modern society that requires a comprehensive approach, innovative solutions, and active participation of all stakeholders.

Digital technologies have great potential to ensure inclusiveness and equal access to innovation. However, in order for this potential to become a reality, it is necessary to overcome existing barriers and work to create an accessible and equal environment for all. Inclusiveness is not a self-evident result of digital innovation; it requires conscious efforts on the part of all stakeholders - government, business, and the public. Ultimately, creating an inclusive digital society is an important step towards ensuring justice and equality for all.

References:

1. *World Bank Group. (2016). World Development Report 2016: Digital Dividends. World Bank Group. Retrieved from https://www.worldbank.org/en/publication/wdr2016*
2. *United Nations. (2016). The 2030 Agenda for Sustainable Development. United Nations. Retrieved from https://sdgs.un.org/2030agenda*
3. *OECD. (2020). Digital transformation in the public sector. OECD Publishing. Retrieved from https://www.oecd.org/governance/digital-transformation-in-the-public-sector-9789264262682-en.htm*
4. *ITU. (2021). Measuring digital development: Facts and figures 2021. International Telecommunication Union (ITU). Retrieved from https://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx*
5. *European Commission. (2020). Digital education action plan 2021-2027. Retrieved from https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en*
6. *UNESCO. (2020). Digital literacy for an inclusive knowledge society. Retrieved from https://en.unesco.org/themes/building-knowledge-societies/digital-literacy*

Chapter 3

USING RESILIENCE MECHANISMS TO ADAPTATION SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEMS TO CHANGES AND CHALLENGES

Svitlana Andros
ORCID: https://orcid.org/0000-0001-5561-901X
Doctor of Economics, Associate Professor
National Scientific Centre "Institute of Agrarian Economics"
(Kyiv, Ukraine)

FINANCIAL STABILITY AS AN IMPORTANT FACTOR IN ENSURING CREDIT WORTHINESS OF AGRO-INDUSTRIAL COMPLEX ENTERPRISES

https://doi.org/10.5281/zenodo.15709559

Abstract
The article examines the basic principles, tools and mechanisms for managing the financial stability of agro-industrial enterprises. The main characteristics of the financial stability of agricultural enterprises are presented. Factors that have a positive and negative impact on the financial stability of agricultural enterprises have been identified. Factors that ensure the creditworthiness of agricultural enterprises are taken into account. Measures to strengthen financial stability have been formulated as a basis for ensuring the creditworthiness of agro-industrial enterprises. Advice is given on strengthening the financial position of agricultural enterprises, which will allow avoiding financial problems and taking the necessary measures to adjust agricultural activities in a timely manner.

Keywords: *credit, creditworthiness, liquidity, financial stability management mechanism, solvency, agricultural enterprises, financial stability factors.*

Introduction

In any enterprise, financial stability is a key aspect of business success. In the conditions of the most intense competition in the market, the financial stability of agro-industrial enterprises becomes the main factor in their development. Financial stability serves as a guarantee of the creditworthiness of a legal entity in the long term. Therefore, when obtaining a loan, great attention is paid to the analysis of the financial indicators of agricultural enterprises.

The state of war in the country significantly weakens the resilience of rural enterprises to various incentives. Therefore, it is necessary to create a certain "immunity" of the enterprise, which will allow it to protect itself from risks and threats, thereby ensuring financial stability. Financial stability reflects the state of financial resources at which an agricultural enterprise can freely dispose of the money and, through the efficient use of agricultural products, carry out an uninterrupted process of production and sale of agricultural products.

The creditworthiness of an enterprise depends on its financial stability in the broadest sense, that is, on the ability to finance, in the current operation and from a strategic point of view, the core activities and performance obligations. The study of a phenomenon such as the financial stability of enterprises is one of the main tasks of agricultural economics, since its absence or low level leads to insolvency and, consequently, to the possible bankruptcy of the enterprise, which determines the relevance of the choice of the topic of the article.

Materials and Methods

The research methodology is based on a systematic approach to scientific knowledge. This approach is implemented using system-structural, system-functional, concrete-historical and other relevant methods.

The following general methods of scientific knowledge were used: abstraction – when considering the tools and mechanisms for managing the financial stability of enterprises of the agro-industrial complex; analysis and synthesis – when studying factors that ensure the creditworthiness of agricultural enterprises; introduction – when considering the main characteristics of the financial stability of

agricultural enterprises; deduction – when formulating measures to strengthen financial stability as a basis for ensuring the creditworthiness of enterprises; comparison – when studying factors that have a positive and negative impact on the financial sustainability of agricultural enterprises; analogy – when substantiating instructions for strengthening the financial position of agricultural enterprises, which will allow avoiding financial problems and taking timely measures to adjust agricultural activities.

Their combination makes it possible to ensure the necessary level of depth and universality of research, as well as the validity of the conclusions of the article. Of important theoretical importance in the research methodology is the concept of functional-structural finance, which combines neoclassical, behavioral and institutional aspects of finance.

Results and Discussion

The economic nature of financial stability is manifested in liquidity and solvency and, if necessary, is supplemented by other indicators of financial condition, analysis of financial policy and strategy, and study of risk factors for non-repayment of loans by agricultural enterprises.

The creditworthiness of a borrower is understood as its economic and business condition, which creates confidence in highly efficient use of the loan, as well as in the ability and willingness of the borrower to repay the loan funds in accordance with the terms specified in the agreement, i.e. to repay the principal amount of the debt on time and pay the interest accrued for the period of loan use (Andros & Gerasymchuk, 2023).

To minimize losses from the war, agro-industrial enterprises need to stabilize their financial stability. Determining the limits of financial sustainability of agricultural enterprises is one of the key economic problems. Insufficient financial stability can lead to insolvency of an agricultural enterprise and, ultimately, bankruptcy, while “excessive” stability hinders development and burdens costs with excess inventories.

To maintain the financial stability of the capital cycle of an enterprise, the following principles must be observed: the principle of a rational policy of attracting external capital (independence) is based on the effect of financial leverage and the need to ensure the

independence of the enterprise from external creditors in order to prevent its bankruptcy; the principle of sufficient profitability of the capital function (profitability) assumes that the level of economic profitability should ensure an increase in the equity capital of an agricultural enterprise to the extent necessary to ensure its creditworthiness and sustainable functioning (Bafoyev, 2019).

The financial stability of agricultural enterprises is significantly influenced by the specifics of the industry: seasonality of production; time lag between investing funds and achieving results; production risk; low level of technological equipment. A significant part of the products obtained is not sold by the enterprise, but remains on the farm as young animals, feed and organic fertilizer; the perishability of the product (Beber et al., 2021).

The overall economic and social importance of the financial stability of agricultural enterprises is determined by the respective contributions of enterprises to individual elements of the system.

1. For state institutions on behalf of the tax and customs authorities – timely payment of all taxes and fees by the enterprise in full to the budgets of the respective levels. This affects the budget execution from revenues.

2. For the Social Protection Fund – timely payment of full insurance contributions to the relevant extra-budgetary funds. If the agricultural industry fails to fulfill its obligations, this has a negative impact on the state's social policy in terms of social transfers.

3. For employees and other interested parties – timely payment of full wages, creation of additional jobs. With a stable financial situation, the probability of wage payment is much higher than with an unstable financial situation. In addition, a stable company has reserves for the creation of additional jobs while ensuring optimal labor productivity.

4. For end users of products – stable and long-term operation, fulfillment of all contractual obligations. Failure to fulfill the obligations of agricultural enterprises can provoke not only a trade crisis, but also a financial crisis due to a decrease in demand for the products of this enterprise and its partners.

5. For suppliers and contractors – timely and full fulfillment of obligations. The income of the above participants in production relations from their main activity is formed from proceeds from

buyers and customers. An increase in the turnover period due to late payments weakens your financial position and leads to an increase in further credit obligations, which is associated with additional costs. If an enterprise does not pay its suppliers and contractors due to an unstable financial situation, this may subsequently lead to its bankruptcy.

6. For commercial banks – timely and full fulfillment of obligations under the terms of the loan agreement. Failure to fulfill the terms of a loan agreement can lead to disruptions in the functioning of banks.

7. For owners (shareholders) of the enterprise – the amount of profit, capitalization of profit, profitability, intended for payment of dividends. For business owners, financial stability is a factor that determines their future profitability and creditworthiness (Kulu et al., 2024).

Analysis of the borrower's creditworthiness for the purpose of an adequate and reliable assessment of the likelihood of loan repayment requires solving the following tasks: a) determining the optimal amount of financial resources provided by the bank and the methods of their repayment; b) conducting ongoing control (monitoring) by the bank over the borrower's compliance with the requirements regarding the indicators of his financial condition; c) identifying credit risk factors and assessing their impact on decision-making regarding the appropriateness of granting a loan to a borrower; d) analyzing the adequacy and reliability of the collateral provided by the borrower for the loan.

To assess creditworthiness, the lender needs a sufficient information base that allows for comprehensive and informed conclusions about the borrower (Gleißner et al., 2022).

The financial activities of an enterprise are a complex of interconnected processes that depend on numerous and diverse factors. The variety of factors requires their systematization, which is important for ensuring the creditworthiness of an agricultural enterprise.

Internal and external factors are interrelated, but their impact on the financial stability of agro-industrial enterprises can be diverse. The positive influence of a particular factor can be reduced or canceled out by the negative influence of another factor (Figure 3.1).

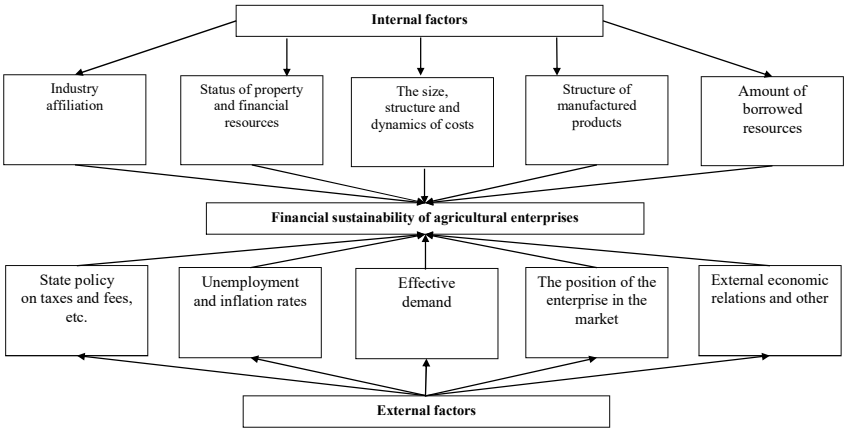


Figure 3.1 Factors that influence the financial stability of agro-industrial enterprises

Source: compiled by the author based on (Mbatha & Ngibe, 2017)

Internal factors include: product composition and structure; the amount of authorized capital; size, structure and dynamics of costs; the property and financial condition of an agricultural enterprise.

Based on the logic of developing a complex of procedures for ensuring the creditworthiness of agro-industrial enterprises, we systematize the factors of the internal environment as follows:

1. Factors of financial activity: dynamics of profitability and profitability; direction of financial strategy; asset structure; dynamics of equity liquidity; financial risks.

2. Operating factors: composition and structure of fixed assets; level of technological equipment; qualifications of employees.

3. Factors of investment activity: the state of investment management; degree of diversification of the investment portfolio.

4. Factors associated with the development strategy: the presence or absence of a development strategy; policies and methods for expanding the customer base; innovation processes; specialization of the enterprise and the degree of assortment diversification.

5. Organizational factors: marketing organization; working conditions; interpersonal relationships; degree of control over work; motivation (Wiese, 2014).

The analysis of internal factors allows us to determine the directions of transformations, the development of which will have the maximum economic effect for the enterprises of the agro-industrial complex in the long term.

External factors affect the financial condition of agro-industrial enterprises in general. They are divided into economic, political, market and demographic categories. For example, an important factor affecting the financial stability of agricultural enterprises is natural and climatic conditions. This is the most significant and unpredictable external factor. The dependence of agriculture on natural phenomena makes it necessary for enterprises to create property and cash insurance as well as reserve funds in the event of crop failures, floods, droughts and other natural disasters (Mbatha & Ngibe, 2017).

In addition, numerous other factors negatively affect the sustainability of the development of the agricultural sector: imbalance in inter-industry trade and lack of equivalence of value shares between industries; imperfection of the legal framework; irrationality of the system of state support for agro-industrial enterprises; rigidity and inadequacy of market regulation mechanisms in agriculture; weak readiness of domestic agro-industrial enterprises to compete with external suppliers, as well as integration into the world economy (Wiese, 2014).

The conditions for the sustainable functioning of enterprises of the agro-industrial complex, in turn, are: renewal of fixed assets and long-term financial investments; replenishment of own working capital in sufficient amounts to maintain current liquidity and ensure the independence of the enterprise; payment of dividends only in amounts that meet the interests of shareholders (owners); material incentives for the enterprise's employees; the principle of maintaining the liquidity of working capital at the optimal required level (liquidity) involves maintaining a certain ratio between groups of borrowed and own working capital and their placement; the principle of the necessary dynamics of capital functions (capital turnover) presupposes a sufficient rate of turnover of functioning capital, prevailing at all its stages. Otherwise, agro-industrial enterprises lose liquidity, and hence independence and sustainability.

Summing up, we believe that the assessment of creditworthiness should be carried out by examining the following characteristics of the borrower enterprise: the reputation of the borrower, which is determined by the timeliness of payments on previously received loans, the reliability of the reports provided, as well as the responsibility and competence of management; the current financial condition of the enterprise and the competitiveness of the agricultural products produced; the ability of the enterprise to mobilize its funds in a timely manner if necessary (Andros, 2024).

Conducting a credit analysis helps to determine the current financial situation of the client and allows the bank to correctly assess the borrower's ability to repay the loan specified in the loan agreement (including the interest on it).

Based on the analysis carried out, it is possible to determine the mechanism for managing the financial stability of agro-industrial enterprises: as a system for regulating the processes of formation, distribution and use of external and internal financial resources of an economic entity in accordance with its strategic goals within the framework of certain principles, financial methods, financial levers, channels and legal environment. The content of this mechanism is manifested in its functions, which ensure the achievement of goals and the fulfillment of a number of tasks.

These functions include regulation, redistribution, accumulation, regeneration and control. Modernization of the mechanism for managing financial stability consists in its adaptation to the conditions of martial law by modifying the methods and levers of financing, as well as channels for raising funds to ensure their effective use in the transformation of production factors into finished products and increasing the creditworthiness and innovation activity of an agricultural enterprise.

Currently, the mechanism for managing the financial stability of an enterprise is implemented as a combination of two types of management: orientation and priority management. The orientation management mechanism is aimed at selecting dominant factors for the processes of regulating the level of financial stability of an economic entity based on its strategic goals. At this stage, problem areas in the transformation of financial resources are searched for and the causes of the emergence of negative factors that reduce

financial stability are identified.

After identifying negative factors, a mechanism for priority management of the financial stability of an agricultural enterprise is implemented, in which the specialized services of the enterprise interact with problem enterprises at the appropriate stages of the transformation of financial resources (Andros, 2024).

The study of the mechanisms of financial sustainability of agricultural enterprises allowed us to define it as a system of legal, organizational, economic, as well as financial and budgetary components (instruments, forms, methods) subject to the complex influence of various factors. Management of financial sustainability should be based on the creation of a whole complex of reproduction conditions capable of mitigating the negative consequences of possible instability of relations (internal and intersectoral), negative natural and climatic processes, as well as variability of product demand. This can be achieved only through the rational use of resource potential and attraction of investments.

As a criterion for the financial stability of agro-industrial enterprises, it is advisable to take into account net profit, since its change affects the formation of working capital, the efficiency of its use and, ultimately, the financial result of agricultural activity, the degree of its stability. Only profit allows for expanded reproduction, renewal of the material and technical base, introduction of innovative technologies, constant labor motivation and work on the principles of self-sufficiency and self-financing.

To improve the financial stability and creditworthiness of agro-industrial enterprises, the following measures must be taken:

1. Create a financial department that would be responsible for managing finances and developing the financial policy of the economy, taking into account the setting of strategic goals. This department will warn about possible signs of insolvency.

2. Create a payment calendar as an element of cash flow planning. The payment calendar can cover the movement of all funds with expenses for conducting a business activity, and it can also cover the movement of all funds of the enterprise and use it to control solvency and creditworthiness. It allows you to synchronize the receipt and withdrawal of funds and ensure that payments are prioritized.

3. It is advisable to organize financial work by creating

responsibility centers for performing certain work. Organizing work by responsibility centers helps to decentralize enterprise management, provide a high-quality approach to solving individual problems that require specific knowledge, identify those responsible for unjustified expenses and, ultimately, significantly increase management efficiency.

4. It is necessary to improve contractual discipline in order to reduce the possibility of failure to fulfill obligations to the farm on time (Aghazade, 2024).

5. One of the most effective methods for improving solvency and liquidity indicators is tax planning. A well-thought-out accounting and valuation policy and timely payment of taxes reduce the risks in tax assessment.

A significant role in increasing the analyzed indicators is played by the choice of the tax system and tax-safe agreements, as well as the use of benefits and preferences available to the agricultural enterprise (Lupenko et al., 2021).

The listed measures will help the company to predict the amount of the tax burden in advance, protect itself from unforeseen expenses in the form of fines and sanctions, and thus improve the analyzed indicators. In addition, it is advisable for the company to develop measures to restructure accounts payable: conclude installment or deferral agreements, convert short-term loans into long-term ones, and carry out mutual offsetting with counterparties. Improving solvency and liquidity is necessary to attract funds from external sources: loans from banks or financial companies, loans, leasing, commercial papers.

Conclusions

Analysis of financial sustainability is important for a company because it allows you to identify a lack of resources in time and respond to the situation in a timely manner by adjusting the strategy, long-term and short-term plans. In order for the analysis results to be objective, it is important to create a system within which each team member can make decisions on money management. On the one hand, this allows him to do his job well. On the other hand, there is a responsibility for the reasonable distribution of funds.

The reasonable distribution of funds by the owner of the company and the allocation of funds for mandatory items include: deductions to the founders for investments, funds for advertising promotion, salaries, increasing the company's working capital and reserves. It is enough to allocate only 3–5% of the weekly margin for the last item, but this amount is the result that provides a safety cushion and increases the company's creditworthiness.

Based on three dimensions of the level of development of enterprises of the agro-industrial complex – competitiveness, sustainability, security – the main directions of using a balanced system for managing the financial sustainability of an enterprise in production should be considered: assessment of the effectiveness of converting endogenous factors of production into costs; assessment of key financial indicators based on the results of the enterprise's activities; assessment of the effectiveness of revenue distribution in line with strategic plans and expectations; identification of success factors and problems in ensuring creditworthiness.

A balanced mechanism for managing the financial stability of agro-industrial enterprises is aimed at the timely identification and elimination of factors that reduce the level of financial stability at all stages of the transformation of financial resources of an economic entity in the form of decomposition of strategic goals for planning operational activities and monitoring their achievement. The advantage of the proposed mechanism is that its use provides financial service providers with a comprehensive assessment of all factors affecting financial stability in line with the strategy at all levels of management. Attempts to manage the financial stability of a company only from the perspective of managing the capital structure, without taking into account the interrelationships between different functional areas, make the sustainable development of the agricultural enterprise more difficult.

Financial stability is an essential corporate characteristic and is necessary to ensure the creditworthiness and sustainable development of the enterprise. Financial stability is divided into several types and is formed under the influence of a number of factors. This is achieved through professional and purposeful management of the entire complex of factors. Based on the results of their analysis and management, it is recommended that each

enterprise develop its own methodology for regulating financial stability, which is both a guide to action in solving the management tasks of the enterprise and is useful for external users of financial reporting.

References:

1. *Andros, S., Gerasymchuk, V. (2023). Development trends of the market of agricultural lending to households in Ukraine: analysis of consumer and mortgage loans. Research on World Agricultural Economy, Vol. 4, Issue 2, article number 846. pp. 32-46. http://dx.doi.org/10.36956/rwae.v4i2.846*
2. *Bafoyev, Otabek. (2019). Actual issues of financial stability of the agricultural sector of Uzbekistan. International Academy Journal Web of Scholar, Vol. 18, Issue 38, pp. 32-37. https://doi.org/10.31435/rsglobal_wos/31082019/6654*
3. *Beber, C.L., Langer, G., & Meyer, J. (2021). Strategic actions for a sustainable internationalization of agri-food supply chains: The case of the dairy industries from Brazil and Germany. Sustainability, Vol. 13, Issue 19, article number 10873. doi: 10.3390/su131910873.*
4. *Kulu, E., Sebu, J. & Osei, B. (2024). Effect of financial stability on new business establishments in Africa: does ease of doing business matter?. Journal of Financial Economic Policy, Vol. 16, Issue 2, pp. 205-225. https://doi.org/10.1108/JFEP-07-2023-0202*
5. *Gleißner, W.; Günther, T.; Walkshäusl, C. (2022). Financial sustainability: measurement and empirical evidence. Journal of Business Economics, Springer, Vol. 92, Issue 3, pp. 467-516. DOI: 10.1007/s11573-022-01081-0*
6. *Mbatha, N., & Ngibe, M. (2017). Factors affecting financial stability of small and medium enterprises: A case study of emerging markets. Risk governance & control. Financial markets & institutions, Vol. 7, Issue 1, pp. 7-17. https://doi.org/10.22495/rgcv7i1art1*
7. *Wiese, J.S (2014). Factors determining the sustainability of selected small and medium-sized enterprises. MBA, North-West University, Potchefstroom, South Africa. 415 pp.*
8. *Andros, S.V. Leasing and bank lending as financial tools for ensuring sustainable development of agricultural production enterprises. Adaptation mechanisms of socio-economic systems to global changes and challenges: resource-efficient technologies, environmental protection, security, sustainable development. Scientific monograph. – Plovdiv: HSSE Publishing Complex, 2024. – 319 p. pp. 9-21. https://doi.org/10.5281/zenodo.12118762*
9. *Aghazade Elnur Aghshin (2024). Ways of strengthening the financial*

stability of small enterprises in Azerbaijan. International Journal of Innovative Technologies in Economy, Vol. 1, Issue 45, pp. 1-27. https://doi.org/10.31435/rsglobal_ijite/30032024/8131

10. *Lupenko, Y., Andros, S., Lupenko A., & Yarmolenko, Y. (2021). Budgetary VAT refund to agricultural producers: analysis of national tax and customs legislation. Journal of Economy Culture and Society, Vol. 64, pp. 279-296. DOI: 10.26650/JECS2021-879534*

Larysa Bogush
ORCID: https://orcid.org/0000-0001-6196-3781
PhD in Economics, Senior Research Scientist
Institute for Demography and Problems of Life Quality of the National Academy of Sciences of Ukraine
(Kyiv, Ukraine)

THE RESILIENCE OF LABOUR USE AND REPRODUCTION AS THE PRINCIPLE OF UKRAINE'S SUSTAINABLE DEVELOPMENT STRATEGY

https://doi.org/10.5281/zenodo.15709574

Abstract
The paper examines the problems and approaches to regulating territorial processes of resilient labour use and reproduction, organization and improvement of the employment efficiency in Ukraine. The mechanisms and strategic priorities for comprehensive solving of the sustainable development tasks for diversifying and balancing the territorial economic systems, stimulating productive employment, improving the professional and qualification potential of the population, implementing decent working conditions, and preventing the outflow of the qualified labour from Ukraine are substantiated. The relevance of these approaches is determined by the needs of systematic overcoming of the martial law period consequences, modernization, balancing the territorial proportions of the economy and employment, increasing the competitiveness of the national enterprises and workers, realizing the European integration aspirations of Ukraine.

Keywords: *workforce, employment, labour market, territorial organization of the economy and society, regulatory mechanism, strategy for increasing resilience and sustainable development.*

Introduction

The resilience and effectiveness of the processes of labour use and reproduction depends on the management of the range of territorial aspects of the employment sphere functioning, in particular, those related to: consistent balancing of labour demand and supply; regulation of socio-labour relations in the context of coordinating the positions and interests of employees and employers;

ensuring the productive employment in settlement systems, economic complexes, sectors, brunch and inter-brunch clusters; optimizing factors and processes of the population territorial mobility, constructive in the view of priorities for fully satisfying national needs in the competitive labour force, diversifying employment and economic subsystems, expanding fruitful cross-border socio-economic cooperation. The urgent need for the well-founded, consistent national strategy for the development of the employment and labour market territorial subsystems, the harmonious functioning of the relevant management institutions, specialized business and civil society structures is determined by the impact of this activities on: the stability of the state and local budgets' filling; the sustainable growth in the level of wages and the share of the population's labour income; the predictability of the range of guaranteed social protection payments within the framework of mandatory insurance and regional development programs, which also have a strong reverse impact on maintaining and accelerating the socio-economic growth rate.

In the conditions of the consistent and increasingly large-scale globalization of standards and technological support for a range of life spheres (in particular, in aspects of organizing the production of goods and services, market assessments of the level of their competitiveness, individual consumption parameters, production and extra-work communications of economic entities, employees and job applicants), as well as the intensification of cross-border corporate, cultural and educational, tourist, and interpersonal ties, the need to take into account the strategies of certain social groups and categories of the population regarding economic activity, choice of the employment field and place is increasing. In addition to institutions for the formation and regulation of territorial labour markets, the mentioned issues are increasingly relevant for managing the system of professional education (higher, vocational), retraining and advanced training, as well as for current and strategic migration policy.

Materials and Methods

Among the well-reasoned studies, which consider the urgent problems of managing the resilient employment sphere and territorial labour markets, it's worth to note the following dedicated to:

– the newest theoretical and methodological principles of the labour market formation and regulation (Shvets, 2019; Bradbury, Davies, 2022; Abreu, Comim, Jones, 2023; Frenken, Neffke, van Dam, 2023; Yang, Ma, Pan, 2023);

– the implementation of current and strategic tasks of systematic hierarchical activities for sustainable managing of employment, sectoral and territorial labour markets in Ukraine and around the world (Kovach, 2019; Volkivska, Osovska, Aksonova, et al., 2021; Medeiros, Scott, Ferreira, et al., 2023; Kosintseva, 2024; Podlevskyi, Komarenko, 2024; Deegan, Broekel, Haus-Reve, et al., 2024; Elekes, Toth, Eriksson, 2024);

– the modernization of mechanisms for the territorial labour markets' formation and the State employment service functioning, in particular, according to the principles and priorities of the EU integration, the practice of other developed countries of the European macro-region (Borysenko, 2019; Capriati, Cirillo, Divella, 2024; Cortinovis, Zhang, Boschma, 2024);

– the improvement of the organizational principles and practices of recruiting and managing the business entities' personnel in the context of preserving and reproducing the labour potential of structural components of the economy and territorial communities in the conditions of a range of contemporary global, regional, and local challenges (Korolenko, Kutova, 2023; Kladova, Zachosova, 2024);

– the national and regional factors, as well as the consequences for the national economy and the employment sphere of legal and shadow cross-border labour migration in the last pre-war years and the period of active war actions (Dzenis, Sharko, 2022; Bestuzheva, Kozub, Gorobynskaya, 2023; Pak, Fiulosh, 2023; Iatsenko, 2024);

– the problems of functioning and balancing territorial labour markets in special socio-economic conditions, related to the specifics of: economic and geographical location, resource potential, economic specialization of border regions, organization of cross-border cooperation (Illiash, 2014); formation of the personnel demand and supply during the martial law period in Ukraine (Bestuzheva, Kozub, Gorobynskaya, 2023; Pak, Fiulosh, 2023; Iatsenko, 2024).

The analysis of these studies demonstrates the need for further study of the problems of labour and employment regulation at the

territorial level of Ukraine in the context of systematizing priorities and mechanisms for their solving in the long-term strategy for sustainable economic, innovative and social development, strengthening the resilience of the national businesses and regional communities.

The purpose of the paper is to identify problems, substantiate long-term and urgent priorities for regulating resilient employment and territorial labour markets in Ukraine in the conditions of combining the range of global, macro-regional (pan-European) and national socio-economic challenges.

Results and Discussion

The formation and improvement of the legal framework, mechanisms and tools for regulating the employment sphere and territorial labour markets are an ever-urgent tasks of authorities at various levels (primarily, in accordance with Articles 15-18 of the Law "On Employment of the Population" No. 5067-VI dated 07/05/2012 in edition of 11/15/2024, those identified as central for implementation of the state employment policy aimed at ensuring full and productive freely chosen employment and social protection of the population in the event of unemployment), as well as directions of their close cooperation with other interested institutions (associations of employees and employers of the national, regional, sectoral and branch scale, other civil society structures). At the same time, Art. 18 of the Law "On Employment of the Population" imposes the obligations on identifying obstacles in the labour market, mobilizing available resources to overcome them, and developing promising employment opportunities on the territorial (including local) bodies and programs for the population employment.

The important areas of activities of both the central and local authorities are recognized herewith as: expansion and diversification of the employment sphere; stimulation of decent remuneration; legalization and reduction of undeclared work; improvement of social dialogue mechanisms within trilaterally cooperating institutions; improvement of conditions, increasing the efficiency of professional and territorial mobility of the working-age population; regulation of the cross-border labour migration; implementation of the long-term national priorities for reproducing and improving

professional and qualification parameters of the labour force capable to work effectively in the modern technological modes' conditions; implementation of the system of levers, tools, factors for optimizing the socio-demographic parameters of territorial communities, which affect the indicators of staffing and the specialization of economic subsystems.

The active state employment policy is now officially interpreted as the systemic measures to promote the rapid job obtaining or mastering new professions by the able-bodied population of the working-age; this approach should be supplemented by the commitment to stimulate market mechanisms for "creating" jobs (Kovach, 2019).

Important individual criteria for choosing a field and a place of employment are, first of all, the level of remuneration, career growth prospects, the possibility of self-development, non-conflict management, an employer's strategies and potential in solving the above-mentioned and related issues (Borysenko, 2019; Korolenko, Kutova, 2023; Kladova, Zachosova, 2024).

In general, the public demand for effective solutions in the field of labour and employment regulation is assessed as high, since in Ukraine, the expectations of the population regarding the well-being and life quality improving are largely connected with the realization of the right to decent work; among the mechanisms and instruments for regulating the labour market, the most promising are those that take into account the objective impact of global trends and are aimed at stimulating innovative employment, entrepreneurial activities of the population, balancing the markets of educational services and labour through increasing the validity of forecasting the relevant indicators of the volume and structure of demand and supply, improving the competitiveness of employees and applicants, expanding a range of decent jobs (Shvets, 2019; Kovach, 2019; Bradbury, Davies, 2022; Abreu, Comim, Jones, 2023; Frenken, Neffke, van Dam, 2023; Yang, Ma, Pan, 2023).

For a long time, the development of the wide range of territorial labour markets in Ukraine has been characterized by a number of destructive trends, among which the following should be noted:

– the anticipatory rates of the labour force reduction in comparison to the rates of the permanent population reduction; aging

of the highly qualified workers' contingent employed in Ukraine on the permanent basis; an increase in the number of both registered unemployed and persons employed without proper declaration among the population of rural settlements and small towns; acceleration of the illegal (including irreversible cross-border) labour migration;

– the significant structural unemployment caused by the stagnation of the employment sectoral structure and numerous cases of an acute imbalance between the supply of labour and the legal demand for it in territorial communities, including those cases related to employers' (monopolists and external stakeholders) underestimation of the cost of competitive workforce reproduction in the modern socio-economic conditions, the weak economic expediency of proposed jobs (especially in the regions of predominant resource-extractive, agricultural, agro-processing specialization). The characteristic features of the last pre-war years in Ukraine were: the noticeable excess of the labour supply on the market over the employers' demand for it; frequent cases of the territorial imbalances in the labour supply and demand, caused by disruptions of economic relations and contractual obligations in the local economic subsystems, financial difficulties due to the insolvency of affiliated enterprises or a lack of cash money (Kovach, 2019);

– high average annual turnover of personnel in the regions and in a number of sectors and brunches, the consistent increase in the need for low-skilled labour and service workers of the simplest professions, caused by the significant changes in Ukraine's specialization in foreign markets over the past three and a half decades, when the preference was given to the resource extraction industries, primary processing of raw materials (including agricultural), transit of minerals and energy resources, production of semi-finished products and components for foreign and transnational corporations;

– high rates of the undeclared labour among persons with vocational and general secondary education, low qualifications, representatives of the simplest professions, formally and informally employed in agriculture, forestry, fisheries, construction, wholesale and retail trade, vehicle repair and maintenance, industry, transport,

warehousing, postal and courier activities, temporary accommodation and catering activities, as well as among the rural residents, which were identified by ILO specialists, Ukrainian researchers and the State Labour Service of Ukraine. In particular, according to the results of a number of long-term studies (Illiash, 2014), the income of the residents of small towns and villages in the western border regions of Ukraine from the illegal shuttle trade, purchases, and seasonal work in the neighbouring countries significantly exceeds their declared main earnings;

– the instability of the state strategy for promoting small and medium-sized businesses in Ukraine, the inconsistency of guidelines and priorities for their development both in regions and in sectors and clusters of economic activities (service, extractive, processing, high-tech, transport and logistics), reinforced by the urgent needs of the state intervention and centralization of measures for organizing the military resistance and the military industry, eliminating the consequences of large-scale military operations;

– the decrease in the level of small and medium-sized businesses' activity due to the socio-economic problems of the recent years (2019-2021 – the Covid-19 pandemic and nationwide sanitary and anti-epidemic measures, 2022-2024 – large-scale military actions in Ukraine), which caused a shortage of working capital, impoverishment and stoppage of a wide range of business entities, including individual entrepreneurs, forced dismissal and unemployment of their hired personnel, destruction of the established economic and logistical connections and specialization of the sectoral and territorial economic subsystems;

– a gradual decrease in the comprehensive, professional and qualification level of the youth and the working-age population due to the integrated influence of such factors, as: the obsolescence of the national economy's sectoral structure and narrowing of its specialization; the destruction of the mechanism for meeting its needs in qualified workers and technical staff; the unsatisfactory quality of specialized programs for professional education and practice in many higher educational institutions; the inability of rural territorial communities to compete equally with urban ones in the level of general secondary education; increasing negative effects from the undeclared labour spread, which provokes subjective and

financial limitations of individual strategies for improving the professional and qualification level of persons involved in it and their family members;

– the ineffectiveness of programs and other targeted proposals for advanced training and retraining, employment of the unoccupied and registered unemployed persons, which are offered by the territorial bodies of the State employment service.

The period of martial law deepened the existing disproportions and imbalances and destructive tendencies in the spectrum of territorial labour markets (from the frontline ones to those of the central and border western, north-western regions), manifesting itself, in particular, in: the collapse, destruction, and relocation of the economic entities' material and technical base; losses in the logistics of supplying their resources and products, as well as in the communications with consumers; restrictions on access to resources; uncertainty of the business environment, forced reorientation of economic relations; physical extermination, forced relocation, changes in employment, disqualification, losses of other components of the employees' labour potential; initiation of the processes for terminating employment contracts, providing unpaid leave to personnel, increasing the length of the working day and week by the administration decision (as measures to reduce employers' losses from forced downtime, production stoppages, which were normalized by changes in the labour legislation); restrictions on access of enterprises, organizations, their personnel to electricity, water and heat supply, mobile communications.

Assessing the dynamics of the Ukrainian labour market during the martial law period, numerous sectoral studies (in particular, (Kosintseva, 2024; Podlevskyi, Komarenko, 2024)) draw attention to: the continuation of the tendency of its general slowdown in the range of territorial and sectoral segments; significant losses of the enterprises' human resources; an aggravation of the qualified personnel shortage in the conditions of changing instructions for hiring, staffing (primarily, in the context of the availability and verification of military registration documents, mobilization measures); the initiation of trends of "buying out" staff from enterprises with lower margins; the absence of cardinal changes in the context of the wage offer as a whole, combined with the tendency

to regularly review and increase the level of salaries with a higher frequency than before in brunches that produce non-defence products, competitive in the foreign markets (the garment industry, etc.); the low prevalence of corporate systems for the personnel adaptation, training, and development; the gradual intensification of the employers' competition for qualified job applicants, which increasingly stimulates, in particular, the return of a number of corporate social benefits (for example, coverage of costs for insurance, education, medical care, physical workouts in gyms, office meals, etc.); the spreading of the practice of retraining personnel, redistributing work responsibilities, restoring the training programs for young specialists; the further workflows' automation; the growing popularity of temporary employment and outsourcing among employers.

According to the International Labour Organization, almost 5 million jobs in Ukraine have been lost due to the war (Pak, Fiulosh, 2023). The level of unemployment has been increased and was estimated as high (17%) at the beginning of 2024 (Iatsenko, 2024). At the same time, the compensatory processes were taking place: 483.2 thousand people had the status of unemployed in 2023, compared to 867.6 thousand in 2022; according to the "Work.ua" data, as of January 2024 in comparison to February 2022, the number of job offers on the labour market recovered by 93%; compared to the pre-war figures, the largest increase in vacancies occurred in Zakarpattia (by 155%), Ivano-Frankivsk (146%), Khmelnytskyi (125%), Lviv (123%), Vinnytsia (120%), Rivne (118%), Chernivtsi (116%) regions, with the unchanged leadership of Kyiv (30,913 vacancies), Lviv (8,473), Dnipropetrovsk (8,452), Odessa (5,752), and Kharkiv (3,347) regions, where 63% of all vacancies were concentrated (Iatsenko, 2024). According to the Ukrainian labour market study conducted by the European Business Association, most companies intended to continue operating in their market segments, were not going to lay off employees, and offered them various forms of assistance (Pak, Fiulosh, 2023).

The urgency of issues of the labour markets' effective regulation in both the border regions (western and south-western), as well as in the central and northern regions with developed production base, extensive transport and energy infrastructure is growing rapidly in

the conditions of implementing Ukraine's European integration aspirations, the pace of which the authorities are trying to maintain even in the martial law period. The Association Agreement with the EU contains a wide range of requirements for unifying national labour legislation and mechanisms of the employment sphere functioning (in particular, in areas of the employed social protection, working conditions, labour mobility), which are directly related to the priorities and mechanisms for balancing and diversifying territorial labour markets (Medeiros, Scott, Ferreira, et al., 2023; Deegan, Broekel, Haus-Reve, et al., 2024; Elekes, Toth, Eriksson, 2024; Capriati, Cirillo, Divella, 2024; Cortinovis, Zhang, Boschma, 2024). Also, the current priority of these activities is Ukraine's accession to the network of European Employment Services (EURES), which unites national employment offices, private employment agencies and employers of the European Union, Iceland, Liechtenstein, Norway, and Switzerland, implementing directives and cooperation between the European Commission, the European Labour Agency, accredited employment services in the listed countries, and specialized national public organizations. The relevant plan of preparatory measures was approved by the Cabinet of Ministers of Ukraine on 10/29/2024. At the same time, the practice has already shown that it is easier for Ukrainians who use temporary protection or protection in accordance with the national legislations of the EU countries, Iceland, Liechtenstein, Norway, and Switzerland to find job within the framework of EURES (EURES, 2022); therefore, this employment mechanism is more effective for finding work for the relocated refugees in the EU than for permanent residents of Ukraine.

In Ukrainian studies, the mechanism for coordinating the goals of the state employment policy and an average job applicant, and hence the functioning practice of the State employment service, its territorial divisions and a range of private HR agencies has been called the service-oriented model of employment (Borysenko, 2019), the development of which, among other things, was aimed at overcoming the problems of inflexibility of the organizational management structure, bureaucratization of the institutional layer of the labour market (Kovach, 2019). According to this model: employment services for competitive citizens are proposed to be

outsourced from the State employment service to private agencies; The State Employment Service and its territorial divisions will continue to contact employers (including on issues of analysing their requirements for employees' knowledge and skills, brunch prospects for job offers, staff turnover processes, reasons for personnel dismissals), select vacancies for certain uncompetitive categories of the population, coordinate and systematize information on labour offers from various sources, presenting those among them for consideration by clients that were assessed as reliable; regional employment centres will be involved in territorial production clusters, performing the functions of supplying the necessary labour force, training and improving workers' qualifications and skills, providing information support, and facilitating their relocation according to the business entities' needs.

Along with the negative factors and tendencies in the formation and functioning of the territorial labour markets themselves, significant incentives for a number of destructive processes in the Ukrainian employment sphere include:

– the imbalance in the structure of specialists' training in the system of higher and vocational education, when the share of humanitarian and technical specialties, oriented to supply personnel for the managerial, financial and economic, service sectors, prevails over production specialties. This trend has been reinforced for a long time, primarily, by the autonomy processes of higher educational institutions, aimed at finding sources of profitability by expanding the list of specialties through non-specialized ones in accordance with the university education format;

– the contradiction between the mass focus on the broad profile of a specialist and the needs of reproducing and improving the competitive workforce for innovative high-tech cluster industries;

– the imperfection of the state migration policy, in particular, its unsystematic nature on the issues of preventing the qualified personnel outflow through the measures to motivate and reward productive work, standardize labour conditions and decent remuneration level, especially in sectors of the national economic specialization;

– the loss of trust in state institutions for guaranteeing and promoting employment, combined with the corruption of

government and local authorities, overregulation of entrepreneurial activity, increasing attempts to unreasonably increase tax pressure on it against the background of rising the cost of living and lending.

The characteristic feature of the national labour market of the pre-war period was the rather high activity of domestic job applicants both in Ukraine and abroad (in the last pre-war years, more than 2 million people applied to private online employment services every quarter, about 400 thousand people submitted resumes to the State employment service) (Borysenko, 2019). In the recent years, Ukraine has consistently been on the list of countries from which the largest number of people left each year, as well as on the list of countries to which the largest number of migrants from other countries of the world arrived (legally and illegally); The main reasons that prompted economically active Ukrainians to go abroad included the unemployment rate higher than public expectations (official national sources reflected the unemployment rate much lower than real – in 2021 the gap was almost 9 times), limited demand and unsatisfactory standards of wages for profession at home (the gap between the average salary in Italy and Ukraine, for example, reached 4.9 times, in France – 7.1, in Germany – 7.5 times), relatively lower wages for specialties that are prestigious and well-demanded in the conditions of modern technological modes (in particular, for IT specialists, healthcare workers, engineers, researchers in physics and mathematics, highly qualified personnel of the real sector), the collapse of the production base of a number of brunches, the unsatisfactory level of economic development of regions and territorial communities at a place of residence, the local armed conflict in eastern Ukraine (at that time) (Dzenis, Sharko, 2022; Bestuzheva, Kozub, Gorobynskaya, 2023).

It is clear that since the end of February 2022, the structure of reasons for cross-border labour migration from Ukraine has been dominated by military and political ones. Among the forced resettles' abroad, approximately 78% currently belong to people of the most productive age (18-40 years) (Iatsenko, 2024).

As a result, the number of emigrants from Ukraine (as well as the number of immigrants) has been steadily increasing every year, but at a faster pace (at least since 2000, the volume of emigration has outpaced immigration) (Bestuzheva, Kozub, Gorobynskaya, 2023).

In general, for Ukraine, the combination of these factors means that only the balanced long-term strategy for regulating employment and regional labour markets, implementing well-substantiated legislative standards and guidelines for decent wages, and quality conditions of working and extra-working life can prevent the current rapid processes of destroying the potential for the national workforce demographic and professional reproduction with the parameters of good qualifications and competitiveness that have already recognized in the world and the pan-European macro-region.

The significant mechanism for preserving the labour potential of the economic structural components and local territorial communities is the modernization of personnel management of business entities of various forms of ownership through the HR engineering methodology, that is, its systematization in the direction of balancing the production goals themselves and their socio-labour reserves in conditions when (according to the principles of modern technological modes' functioning and reproduction) the stimulation of productive employment and labour, creativity and innovative activities of employees, the cohesion of work teams are the main resources of profitability, resilience, and production development (Korolenko, Kutova, 2023; Kladova, Zachosova, 2024). Such personnel management practices should combine reasonable material and moral incentives for work, optimize mechanisms for individual career growth, formal and informal organizational and production interactions, stimulate professional improvement and productivity increase on the basis of formal and informal education and self-education (with and without separation from production), contribute to the progress of cooperation and the moral climate in work teams, ultimately ensuring balanced social responsibility of the business entity towards its own employees and the local territorial community. This allows to supplement and capitalize the developed resource of corporate reputation, because such systemic transformations of an enterprise's organizational and process structure meet criteria that have the social and individual value widely recognized by employees and job applicants, state structures and civil society institutions.

However, according to the European Business Association survey, in the adverse conditions of martial law, anticipating financial restrictions, 76% of companies in Ukraine implemented a

number of compensatory measures related to the costs for personnel: most of them reduced employees' training or completely abandoned it, including 39% of companies that froze budgets for the stuff developing, training, and maintaining; 21% reduced personnel; 11% froze bonuses and premium payments; 7% reduced the wages (Pak, Fiulosh, 2023).

The priorities of the long-term strategy for increasing the resilience and efficiency of regulating territorial labour markets in Ukraine combine:

– strengthening the systematization of the state employment policy in the areas for: integrating the regional economic subsystems; stimulating diversification of brunches that meet the domestic consumer demand; preserving and improving the quality of reproducing labour potential for the specialization sectors of the national economy; promoting productive employment through the mechanisms of the state and regional orders for personnel training, stimulating professional and territorial mobility of the economically active population, using the innovative potential of small and medium-sized businesses in the sectors of semi-finished and finished products, production services, management digitalization, logistics, and household services; extra-administrative preventing of cross-border migration of working-age citizens and their families (through the measures to increase wages and implement a range of guarantees for decent conditions of working life);

– activation of programs for joint (state, grant, private) investing the national scientific and technical sphere as the mechanism for innovative modernization and targeted clustering of territorial economic subsystems, ensured by strengthening and increasing the efficiency of using the material, technical and labour potential of scientific, research and development work;

– further implementation of the concept of transforming the State Employment and Labour Services as mediators of social partnership of all labour market participants (including in the aspects of: increasing the relevance, improving the quality of the proposed programs for professional orientation, training and advanced training of job applicants and the unemployed of working age and older; preventing violations of the socio-labour rights of full-time, part-time and temporary workers by business entities of all forms of

ownership; preventing undeclared work within the framework of available mechanisms for public and private partnership, targeted investment, preferential taxation, fiscal and administrative sanctions);

– stimulation of employers and their associations to expand programs for the personnel professional education, advanced training and retraining without interruption from work, combined with material and career incentives for such educational and innovative activity as a mechanism for reducing staff turnover, preserving and expanding the contingent of the most qualified employees, implementing initiatives of social responsibility trough strengthening the economic base of territorial communities;

– further consistent provision of legislative and technical compatibility of Ukrainian and European systems of professional education standards; conclusion of interstate agreements that ensure mutual recognition of qualifications and social protection of employees;

– substantiation and implementation of the state re-emigration program (covering the European macro-region countries, at least), at the initial stages, aimed at the return to Ukraine of compatriots employed in transnational companies and corporations, as well as entrepreneurs among working persons of retirement age;

– further facilitation of the process of obtaining employment permits for immigrants (citizens of other countries, stateless persons) in the context of fulfilling the European Union norms on the free workers' mobility, according to which, workers from member states, in particular, have free, unpaid access to the labour markets of other EU member states; implementation of a unified residence and work permit in Ukraine following the EU example;

– joining the EURES network, promoting the domestic segment of labour demand within these institutional and service interactions as components of the mechanism for increasing the mobility of Ukrainian workers, ensuring their full competitive access to national best paying vacancies and labour markets of the European macro-region, integrating our country into the entire array of European employment structures.

Considering the acuteness of the problems of preserving and improving the labour force of the national economy, its professional

and qualification potential, which has been dramatically increased by the loss of workers as the result of large-scale military operations, the urgent priorities for improving the effectiveness of mechanisms for managing employment and territorial labour markets in Ukraine, in particular, include:

– balancing the system of legislative, administrative, financial and fiscal regulation of the employment sphere and its territorial subsystems both within the hierarchical network of relevant state institutions, as well as with regard to long-term priorities of socio-economic recovery, modernization and diversification of regional economic complexes;

– strengthening the control over the compliance with standards of remuneration (the minimum wage, in particular, plays a leading role in the implementation and strengthening of wages' motivational and reproductive functions, significantly influencing the preservation and reproduction parameters of the country's labour potential (Volkivska, Osovska, Aksonova, et al., 2021)) and decent working conditions of hired personnel of economic entities of all forms of ownership, improving relevant norms and standards at the legislative level along with establishing proper quantitative and time benchmarks;

– substantiating the amount of unemployment benefits taking into account the costs of both the physiological and the social subsistence minimum (setting it, following the example of Scandinavian countries, at 70% of the average wage (Volkivska, Osovska, Aksonova, et al., 2021));

– standardizing the mechanisms for involving employers' sectoral associations to the discussion and implementation of measures to promote the territorial communities' economic development;

– expanding the practice of tracking and identifying cases of undeclared labour in the range of sectors and branches, developing the methodological foundations of such activities on the basis of the ILO relevant studies in the EU countries;

– optimizing the activities for taxation of small and medium-sized business entities in the context of guidelines for preserving the structure of economic specialization and the demographic potential of territorial communities; developing mechanisms to facilitate the participation of small and medium-sized businesses in programs of cross-border cooperation and targeted foreign investments;

– further improving of the mechanism for compensating employers (including small businesses) for the costs of employing the certain unemployed categories under the programs of cooperation with the State Employment Service territorial bodies;

– coordinating and intensifying the activities of the state and non-state institutions for entrepreneurship consulting and financial support;

– developing state-licensed programs for professional education, advanced training and retraining of persons of older working age and retirement age, which can be implemented both directly by the institutions of higher and vocational education within the state and regional segments of the personnel training order, as well as through the mediation of the State Employment Service territorial bodies;

– further improving (including in terms of transparency) of programs and means for informing and interacting between job applicants, territorial bodies of the State Employment Service, and non-state HR agencies (in particular, those involved in the state programs for employment promotion).

Conclusions

The comprehensive summary of the problems of resilient employment and labour territorial organization in Ukraine, as well as recent studies on the management and, in particular, regulation of regional labour markets has revealed the growing public needs for systematizing relevant priorities, improving the mechanisms and instruments of their functioning in the context of preserving and consistently ensuring the productive employment of the national competitive workforce as an integral resource and performer of the long-term strategy for restoring and sustainable increasing the competitiveness of the national economy on the basis of its diversification, innovative modernization, interregional and cross-border, inter-brunch and inter-sectoral clustering (within a range of production relations of the real, service, transport and logistics sectors).

Current approaches and mechanisms for regulating territorial aspects of resilient employment and labour in Ukraine in the near and long term perspective include: rising the wages' share in the cost of domestic products; consistent implementation of the system of

standards for wages and decent working conditions, including through the expansion of the State Labour Service relevant powers; balancing the system of legislative, administrative, financial, and fiscal regulation of the regional economies according to the priorities of their socio-economic recovery, modernization, diversification, and increasing the level of complex formation; targeted regulation of the territorial labour markets' capacity, including through stimulating entrepreneurial activities in the real sector of the economy, diversifying the sectors of enterprises' services, IT products, technologies and services, preferential taxation of business entities involved in the restoration and development of the economic potential of territorial communities that suffered during the period of military operations, promoting territorial mobility of economically active citizens and their families; working out the interaction between the State Employment Service and private HR agencies on the employment issues for more competitive job applicants, socially vulnerable and insufficiently competitive population categories; improving the economic block of migration policy in the context of preserving national skilled workforce, reintegrating forced cross-border refugees and labour migrants.

References:

1. *Shvets O.V. (2019) Suchasni aspekty rehuliuvannia rynku pratsi: teoretyko-metodolohichnyi kontekst [Modern aspects of labour market regulation: theoretical and methodological context]. Ukrainskyi zhurnal prykladnoi ekonomiky – Ukrainian Journal of Applied Economics, vol. 4 (3), pp. 350–358. (in Ukrainian)*
2. *Kovach V.O. (2019) Prohnozuvannia mekhanizmu upravlinnia rynkom pratsi [Forecasting the mechanism of the labour market management]. Publichne uriaduvannia – Public Management, vol. 5 (20), pp. 109–123. (in Ukrainian)*
3. *Bradbury J., Davies A. (2022) A regional economic development and the case of Wales: theory and practice and problems of strategy and policy. National Institute Economic Review, vol. 261, pp. 1–15.*
4. *Abreu M., Comim F., Jones C. (2023) A capability-approach perspective on regional development. Regional studies, vol. 58 (11), pp. 2208–2220.*
5. *Frenken K., Neffke F., van Dam A. (2023) Capabilities, institutions and regional economic development: a proposed synthesis. Cambridge Journal of Regions, Economy and Society, vol. 16 (3), pp. 405–416.*

6. *Yang H., Ma J., Pan Y. (2023) Setting local economic growth targets: does it mitigate nationwide policy uncertainty? Regional Studies, vol. 58 (5), pp. 1059–1075.*
7. *Volkivska A.M., Osovska H.V., Aksonova O.V., Osovskyi O.A., Nikolaichuk S.V. (2021) Udoskonalennia mekhanizmu upravlinnia zainiatistiu naselennia v konteksti stratehichnoho sotsialno-ekonomichnoho rozvytku rehionu. [Improvement of the mechanism of the population employment management in the context of the region strategic socio-economic development]. Efektyvna ekonomika – Efficient Economy, vol. 12. (in Ukrainian) Available at: http://www.economy.nayka.com.ua/pdf/12_2021/77.pdf (accessed May 30, 2025)*
8. *Medeiros E., Scott J., Ferreira R., Boijmans P., Verschelde N., Guillermo-Ramirez M., Gyula O., Peyrony J., Soares A. (2023) European territorial cooperation towards territorial cohesion? Regional studies, vol. 58 (8), pp. 1518–1529.*
9. *Kosintseva P.Iu. (2024) Transformatsiia sotsialno-trudovykh vidnosyn na pidpryiemstvakh zaliznychnoho transportu [Transformation of social and labour relations at railway transport enterprises]. Pidpryiemnytstvo ta innovatsii – Entrepreneurship and Innovation, vol. 33, pp. 31–35. (in Ukrainian)*
10. *Podlevskyi A.A., Komarenko T.A. (2024) Doslidzhennia problemy defitsytu kadriv na rynku pratsi na prykladi shveinoi haluzi [Research on the shortages in the labour market conducted for sewing industry as an example]. Pidpryiemnytstvo ta innovatsii – Entrepreneurship and Innovation, vol. 32, pp. 81–87. (in Ukrainian)*
11. *Deegan J., Broekel T., Haus-Reve S., Fitjar R.D. (2024) How regions diversify into new jobs: from related industries or related occupations? Regional studies, vol. 58 (11), pp. 1965–1980.*
12. *Elekes Z., Toth G., Eriksson R. (2024) Regional resilience and the network structure of inter-industry labour flows. Regional studies, vol. 58 (12), pp. 2307–2321.*
13. *Borysenko O. (2019) Servisno oriientovana model rozvytku derzhavnoi polityky zainiatosti v Ukraini: innovatsiini pidkhody [Service-oriented model of the development of the state employment policy in Ukraine: innovative approaches]. Derzhavne upravlinnia ta mistseve samovriaduvannia – Public Administration and Local Government, vol. 4 (43), pp. 37–43. (in Ukrainian)*
14. *Capriati M., Cirillo V., Divella M. (2024) Productivity slowdown across European regions: does non-standard work matter? Regional studies, vol. 58 (9), pp. 1687–1709.*
15. *Cortinovis N., Zhang D., Boschma R. (2024) Regional diversification*

and intra-regional wage inequality in the Netherlands. Regional studies, vol. 58 (12), pp. 2292–2306.

16. *Korolenko O.B., Kutova N.H. (2023) HR-menedzhment pidpryiemstva: vyklyky ta realii sohodennia [HR-management of the enterprise: challenges and realities of today]. Ekonomika ta suspilstvo – Economy and Society, vol. 53. (in Ukrainian) Available at: https://economyandsociety.in.ua/index.php/journal/article/view/2682/2597 (accessed May 30, 2025)*
17. *Kladova O.O., Zachosova N.V. (2024) Metodychni pidkhody do formuvannia systemy HR-menedzhmentu yak elementu stratehichnoho ta innovatsiinoho upravlinnia rozvytkom orhanizatsii [Methodological approaches to the HR-management system formation as an element of strategic and innovative management of the organization development]. Molodyi vchenyi – Young Scientist, vol. 5 (129), pp. 128–133. (in Ukrainian)*
18. *Dzenis O.O., Sharko N.H. (2022) Mizhnarodna mihratsiia robochoi syly v suchasnykh umovakh ta yii vplyv na mihratsiinu polityku derzhavy [International labour migration in modern conditions and its influence on the state's migration policy]. Ekonomika ta suspilstvo – Economy and Society, vol. 37. (in Ukrainian) Available at: https://economyandsociety.in.ua/index.php/journal/article/view/1195/1152 (accessed May 30, 2025)*
19. *Bestuzheva S.V., Kozub V.O., Gorobynskaya M.V. (2023) Ukraina v protsesakh mizhnarodnoi mihratsii robochoi syly: analitychne doslidzhennia [Ukraine in the processes of international labour migration: analytical study]. Ekonomika ta suspilstvo – Economy and Society, vol. 48. (in Ukrainian) Available at: https://economyandsociety.in.ua/index.php/journal/article/view/2270/2193 (accessed May 30, 2025)*
20. *Pak N.T., Fiulosh M.T. (2023) Funktsionuvannia rynku pratsi v Ukraini v umovakh viiny [Labour market functions in Ukraine during the war]. Molodyi vchenyi – Young Scientist, vol. 4 (116), pp. 160–167. (in Ukrainian)*
21. *Iatsenko L. (2024) Vidnovlennia rynku pratsi v Ukraini v umovakh viiny: rehionalni aspekty [Restoration of the labour market in Ukraine in war conditions: regional aspects]. Kyiv: National Institute for Strategic Studies. (in Ukrainian) Available at: https://niss.gov.ua/sites/default/files/2024-03/az_regrinki-praci_04032024.pdf (accessed May 30, 2025)*
22. *Illiash O. (2014) Mekhanizmy ta instrumenty rehuliuvannia rynku pratsi u prykordonnykh raionakh zakhidnykh rehioniv Ukrainy [Mechanisms and instruments for regulating the labour market in the*

border areas of the western regions of Ukraine]. Zhurnal Yevropeiskoi ekonomiky –Journal of European Economy, vol. 13 (1), pp. 51–67. (in Ukrainian)

23. *EURES (2022) Eksperimentalnyj Fond talantov ES/EU Talent Pool Pilot – voprosy i otvety [EU Talent Pool Pilot – Questions and Answers]. (in Russian) Available at: https://eures.europa.eu/system/files/2022-10/EU%20Talent%20Pool%20Pilot%20-%20Q%26A%20-%20RU.pdf (accessed May 30, 2025)*

Marta Danylovych-Kropyvnytska
ORCID: https://orcid.org/0000-0003-3963-5524
PhD in Economics, Associated Professor
Lviv Polytechnic National University
(Lviv, Ukraine)

DEVELOPMENT OF REGIONS BASED ON A CLUSTER APPROACH

https://doi.org/10.5281/zenodo.15709594

Abstract
The region as a participant in network interaction acts, on the one hand, as a territorial basis for organising the process of interaction between microeconomic actors, and, on the other hand, becomes a full-fledged subject of the network economy, using its advantages and avoiding specific threats of networking. The evolution of theories of regional development reflects the increasing role of intangible assets, the possibility of interdisciplinary knowledge and the transition of regions to a network development model. The issues of scientific formation of the methodological basis of the network economy at the regional level are unexplored and are necessary for the development of economic policy and the reconstruction of individual regions and territories of the state. The most appropriate is the formation of promising forms of network organisation of business structures in the region on the basis of cluster interaction. The step-by-step algorithm proposed by the author contains the main directions of activity of regional authorities to improve the efficiency of network interaction of regional business structures.

Keywords: *region, clusters, networks, networking, regional policy.*

Introduction

The modern organisation of the economic space leads to the need to revise traditional approaches to the management of economic entities. A region (oblast) as a subject of network interaction is both an administrative-territorial entity and an economic space with fuzzy boundaries determined by the spheres of influence of regional policy actors. Therefore, modern studies of the regional economy can be conducted only with due regard for the network economy, where the region is both an object and a subject of interaction, transforming the

role and functions of regional governments, creating new legal challenges and creating the necessary infrastructure.

The implementation of the networking principles leads to the formation of a regional network economy, but does not provide a unified understanding of its essence in general, which leads to the emergence of different development models based on heterogeneous basic principles.

The regional aspects of the network economy remain virtually unexplored, as there is no clear understanding of the essence, forms, and importance of network culture for the development of economic sectors in the region, and regional economic structures are weak and do not make a significant contribution to the gross regional product. Therefore, it is important to develop a methodological basis for the network economy at the meso-level in order to develop an adequate economic policy and rebuild the territories.

Materials and Methods

The classical and modern concepts of regional development are widely known and widely used in the works of Ukrainian scientists (Turkyi, 2017; Petkova & Marushchak, 2017; Lelechenko, 2015; Reutov, 2010). None of them individually reflects the essence of the region in the new economy, so a modern approach to regional development management should be based on a fundamentally new paradigm that integrates individual elements of existing concepts of regions through the prism of networking.

The analysis of literature sources allowed us to formulate the main theses of networked regional development. The level of development of these processes and network structures in a region indicates the level of development of its economy as a whole, including consumers, business structures and regional authorities. This is due to a number of factors:

– the spread of network structures brings new consumption patterns, new standards and lifestyles;

– network structures expand in areas where there is potential solvent demand and a large market;

– networks attract additional investment to the territory, create new jobs, and form the tax base of the region;

– regional authorities create an attractive institutional

environment for networks to 'enter' the region, ensure transparency of administrative.

New economic forms of activity in the region are built around global network structures of capital, management and information, and access to technological skills and knowledge is the basis of productivity and competitiveness of the regional economy. Network interaction with global companies – industry leaders, multinationals or firms that become part of a territorial cluster – leads to the emergence of new industries in territorial markets and activates existing ones.

The resource potential of a region, especially labor, in a network economy increases significantly for a number of reasons:

– if a firm becomes part of a network organization, it has to either hire employees from other regions (countries) or train/retrain its own employees;

– the structure of financial flows to education changes – the amount of budgetary funds does not change, and investments in education grow at the expense of internal sources of network structures;

– the development of new regional industries creates a stable demand for specialists in a particular field of knowledge, which stimulates the emergence of new scientific and educational areas in the region.

The expansion of network economy processes increases the asymmetry of the spatial and temporal organization of the region's economy, as those entities (industries, firms) whose development does not correspond to the pace of development of information and communication technologies will lag behind.

Network mechanisms are considered as strategies of survival or development, depending on the needs of the region, on the basis of which regional authorities build their own original territorial and sectoral trajectories of economic entities' network interaction, using both administrative and economic levers of influence. At the same time, the advantages of the region's sectoral specificity and the peculiarities of the development of certain industries, mainly information and communication, increase its efficiency and ensure the growth of the national economy as a whole.

Results and Discussion

Clusters are one of the most promising forms of network organization of business structures in the region. Highly developed countries are actively using the cluster approach to formulate an effective economic policy that ensures the growth of gross regional product and high employment rates.

The cluster approach transforms the nature of the regional economic development process, when the priority becomes not the industry as an object of management, but the territory, which allows to increase the competitiveness of the territorial entity. The regional authorities should use this resource as a tool for managing territorial development, as a potential source of growth in the competitiveness of the local entity, and to stimulate the formation of an adequate network structure in the region. At the same time, clusters formed on a bottom-up basis should rely on substantial support from the authorities.

The year 2024 was an important milestone in the development of the Ukrainian Cluster Alliance (UCA), which demonstrated significant growth, raised cluster management standards, diversified funding sources, expanded international cooperation, and took important steps to promote cluster policy in cooperation with the Ministry of Economy of Ukraine (Ukrainskyi klasternyi alians…, 2024).

The number of UCA members has grown to 44 clusters, which is 70% of the clusters operating in Ukraine, uniting key sectors of the economy: industry, engineering, energy, IT, agriculture, defense and medicine.

Over the past year, more than 10 sources of funding have been attracted, including Horizon Europe and Interreg Europe programs and support from USAID, UNDP and UNIDO. The UCA has expanded its geography of ties and influence to include new EU countries – Norway, Denmark, France and the UK – in addition to traditional relations with Poland, the Czech Republic, Romania and Germany.

The SME Development Strategy until 2027 and the Operational Action Plan for 2024-2027 state that '...the creation of industry clusters and science parks will help attract investment and develop regions'. That is, the government has begun to position clusters as

one of the key tools for innovative development (Ministerstvo ekonomiky Ukrainy).

The initial version of the Strategy, published in January 2024, did not mention clusters or other types of business associations at all. Clusters were mentioned only in the final version, adopted in August, thanks to the proactive position of the UBA. In February 2024, the UBA prepared letters and appeals to the Ministry of Economy that drew attention to this issue. However, no real decisions on the creation of cluster policies were made at the national level in 2024. This issue remains a key challenge for the UCA in 2025.

Instead, significant progress has been made at the regional level:

1. Signing a memorandum with the Lviv City Hall and the regional military administration. As part of the Professionals4Ukraine Cluster Week event, a cooperation agreement was signed, which allowed the creation of a permanent working group to systematize cluster policy in the Lviv region. This ensured regular exchanges of experience and intensified dialogue between clusters and regional authorities.

2. A project to create six regional cluster policies. At the end of 2024, the UCA signed a two-year contract that provides for active cooperation with the Regional Development Agencies of six regions: Sumy, Vinnytsia, Volyn, Ternopil, Khmelnytskyi, and Odesa.

The project will develop regional cluster policies and support selected clusters in each region (Ukrainskyi klasternyi alians…, 2024).

It is well known that clusters are very popular as a strategic direction for the development of individual territories and regions. Alongside the application of the cluster concept to the regional economy, it is also important to explore the possibilities of supporting existing cluster initiatives in the regions.

Cluster policy is a system of state measures and mechanisms to support clusters, which ensures the introduction of innovations and the competitiveness of regions and enterprises that are part of the cluster. Clusters are themselves innovative forms of business development and organization of effective interaction between economic entities, and without radical and dynamic renewal of territorial units, the national economy cannot ensure the recovery it needs. That is why cluster policy is not only an exclusively economic

but also a political tool for institutional transformation. It can take different forms:

– a separate policy with a clear strategy and a separate budget for the development of industrial sectors;

– a policy focusing on certain aspects of cluster development, such as networking among business structures;

– a policy that is an element of other strategies, such as regional development;

– a general target for a specific industry.

In general, cluster policy is aimed at reducing the differentiation of regional development, increasing the investment attractiveness of individual territories in order to increase national production.

When implementing cluster policy with the participation of the state, there are four types of cluster policy: catalytic, supportive, directive and interventionist, with regional authorities giving priority to supportive cluster policy (Enright, 2002).

The algorithm for developing a cluster policy should take into account the specifics of each region of Ukraine to form a unified national recovery policy that will facilitate the formation and effective functioning of clusters (Figure 3.2).

Cluster analysis is carried out in two major stages. In the first stage, the regional economy is surveyed for existing or potential clusters. The second stage involves a detailed survey of the identified clusters, for which support policies are then developed.

The algorithm will consist of the following stages:

Stage 1. Decision-making on the need to find effective tools for regional economic growth/recovery through cluster mechanisms.

Stage 2. Identification of the preconditions for the formation of clusters in the region based on an assessment of its competitive advantages.

Stage 3. Identification of existing and potential clusters.

There are many methods for identifying and analyzing regional industrial clusters, the objective assessment of which will allow for informed decision-making. The most common are: expert assessments, localization coefficients, inter-industry balances, graph theory, and other special studies. There is no universal methodology for identifying clusters that can be used for any country or region.

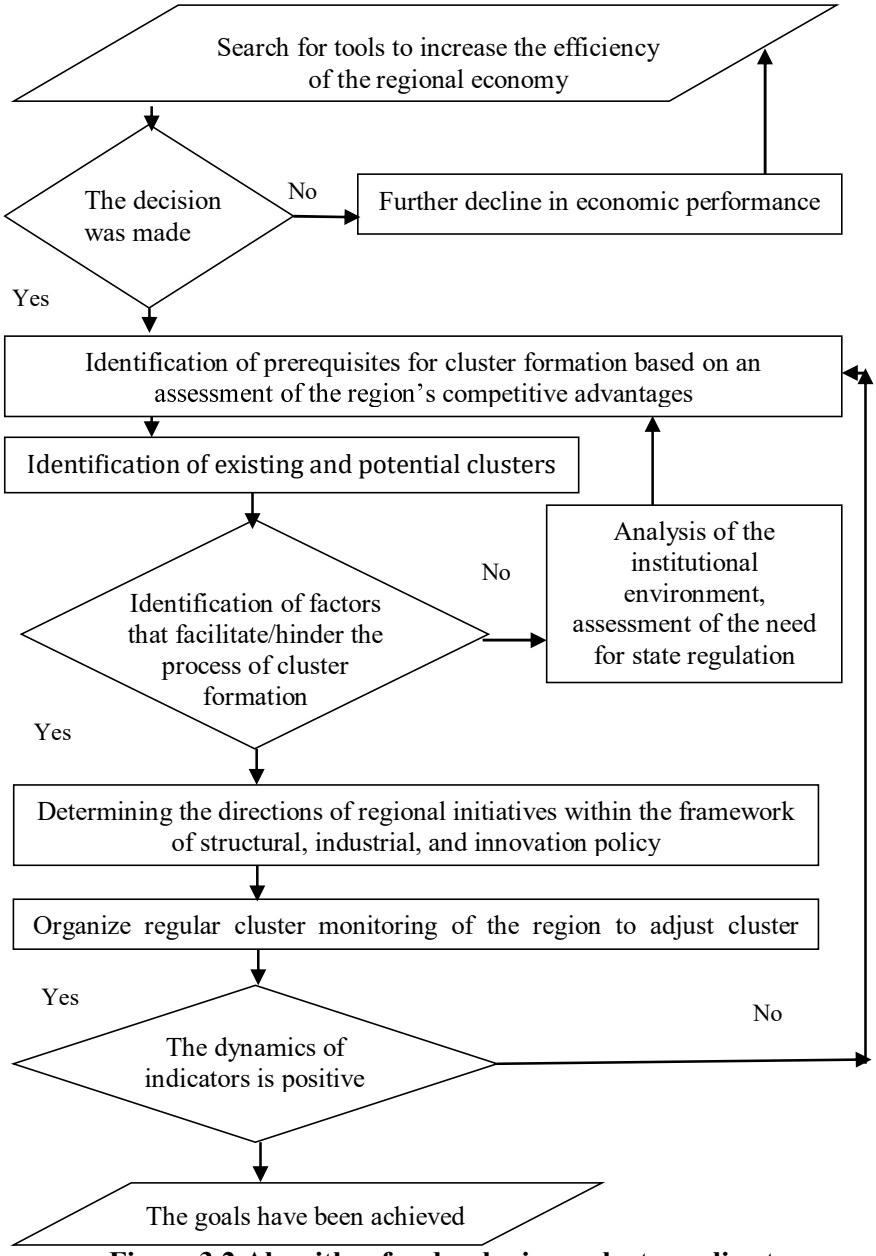


Figure 3.2 Algorithm for developing a cluster policy to manage network interaction in the region

Source: created by the author

Stage 4. Analysis of the institutional environment and identification of constraining/stimulating factors for cluster formation in the region.

The analysis has identified three possible situations:

– existing clusters that are already operating in the region without government support. Such cluster formations are self-sufficient, they do not need additional government incentives, and regional authorities only need to maintain the existing environment and network infrastructure;

– existing clusters need state support to create an environment and network infrastructure that will ensure the growth of their TFP and reduce the impact of negative, anti-market behaviour;

– only potential clusters (stage 3) have been identified, the creation and operation of which requires the development of a cluster policy as a strategic direction for the development of the regional economy.

Stage 5. Identification of areas of regional initiatives (structural, industrial, innovation policy) to support the development of the region's cluster-based CSR.

Stage 6. Organize regular cluster monitoring (mapping) of the region to adjust the cluster policy.

Regular analysis of regional development will allow timely identification of legislative and organizational gaps in regional economic policy to support existing clusters in the region and implementation of corrective measures. In addition, the identification of new potential cluster formations will allow regional authorities to implement new mechanisms that can stimulate cluster processes.

Stage 7. Assessment of the dynamics of regional development indicators by means of cluster policy.

If the dynamics of indicators is positive, the goal has been achieved. Otherwise, it is necessary to return to the analysis of the institutional environment and identify the factors that stimulate the process of cluster formation in the region (stage 4).

The step-by-step algorithm proposed by the author contains the main directions of activity of regional authorities to improve the efficiency of network interaction of regional business structures. Of course, this is not a perfect model, but it contains the main areas of activity of regional authorities to improve the efficiency of

interaction between economic entities in the region.

At the same time, critics of cluster policy believe that the concentration of production in a narrow area within a cluster leads to a decrease in the sustainability of the regional economy and reduces its diversification. This only confirms the rule of a balanced approach to state regulation in the economic sphere, when it is the state that should facilitate the creation of cluster associations for the recovery and growth of the domestic economy.

Conclusion

Most researchers emphasize the technical basis for the emergence of network relations in the economy, but there are concepts where the dominant factor in the formation and formation of networks is primarily organizational and economic mechanisms and institutional frameworks for development.

The main requirement for the regional governance mechanism is to create such conditions for economic agents that a balance of their interests is achieved, and the synergistic effect of their interaction would bring results not only to the participants of network associations, but also extend to society as a whole. Regional development management should combine the principles of effective networking and not suppress the competitive environment. One of the ways is the functioning of cluster formations as a form of business interaction in the network economy.

The use of the cluster approach in the formation of regional economic policy and regional management strategy allows taking into account the advantages of the network economy and changing the 'rules of the game' in the market, which contributes to the emergence of more efficient industries in the region, promising forms of regional business organization, and the implementation of successful management decisions. All of this generally increases the coverage of the needs of regional consumers and the profitability of regional firms and the region as a whole.

References:

1. *Turkyi I. (2017) Kontseptualni osnovy formuvannia novitnoi paradyhmy sotsialno-ekonomichnoho rozvytku rehioniv [Conceptual foundations for the formation of a new paradigm of socio-economic development of regions]. Problemy ekonomiky. 4. 230-235.*

https://www.problecon.com/export_pdf/problems-of-economy-2017-4_0-pages-230_235.pdf [in Ukrainian].

2. *Petkova L.E., Marushchak D. Yu. (2017) Stiikyi rozvytok rehioniv Ukrainy v umovakh yevropeiskoho pidkhodu do detsentralizatsii [Sustainable development of Ukraine's regions in the context of the European approach to decentralisation]. Ekonomichnyi visnyk Natsionalnoho hirnychoho universytetu. 3. 58-65. http://nbuv.gov.ua/UJRN/evngu_2017_3_9 [in Ukrainian].*
3. *Lelechenko A. P. (2015) Teoretychni zasady rehionalnoi polityky staloho rozvytku [Theoretical foundations of regional sustainable development policy]. Derzhavne upravlinnia: udoskonalennia ta rozvytok. 10. http://www.dy.nayka.com.ua/?op=1&z=1642 [in Ukrainian].*
4. *Reutov V. Ye. (2010) Zakonomirnosti i paradyhmy rehionalnoho rozvytku [Patterns and paradigms of regional development]. Efektyvna ekonomika. 9. http://www.economy.nayka.com.ua/?op=1&z=319 [in Ukrainian].*
5. *Ukrainskyi klasternyi alians. Richnyi zvit UKA 2024. [Ukrainian Cluster Alliance. Annual report 2024] Retrieved from https://www.clusters.org.ua/annual-report-2024/ (2025, February, 15)*
6. *Ministerstvo ekonomiky Ukrainy. Uriad skhvalyv Stratehiiu rozvytku maloho ta serednoho biznesu do 2027 roku ta operatsiinyi plan zakhodiv na 2024-2027 roky [Ministry of Economy of Ukraine. The Government has approved the SME Development Strategy until 2027 and the Operational Action Plan for 2024-2027] Retrieved from https://me.gov.ua/News/Detail?lang=uk-UA&id=161fb74b-c8ad-4cc5-b7ed-645962eb2e28&title=StrategiiaRozvitkuMSB (2025, February, 25)*
7. *Enright, M. J. Regional Clusters: What we know and what we should know. Paper prepared for the Kiel Institute International Workshop on Innovation Clusters and Interregional Competition, 2002. P. 18. http://dx.doi.org/10.1007/978-3-540-24760-9_6*

Lukasz Furman
ORCID: https://orcid.org/0000-0002-9156-8165
Associate Professor, Chair of Economics and Finance
University of Jan Dlugosz in Czestochowa
Witold Furman
ORCID: https://orcid.org/0000-0002-3982-6921
PhD in Economics, Chair of Financial Accounting
University of Economics in Krakow
Jessica Orzechowska
Institute of Economics
State Academy of Applied Sciences in Krosno
(Czestochowa, Krakow, Krosno, Poland)

TAX ASPECTS OF ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT

https://doi.org/10.5281/zenodo.15709607

Abstract
The article discusses selected tax and quasi-tax solutions in the Polish tax system that stimulate solutions related to environmental protection and thus shaping sustainable development. The article presents various definitions of sustainable development presented in domestic and foreign literature and in the legal system. The article emphasizes that the construction of sustainable development can be based on environmental protection, and that this area can be stimulated through tax solutions. Therefore, a review and assessment of Polish tax solutions promoting environmental protection was conducted.

Keywords: *tax, sustainable development, environmental protection.*

Introduction

The Polish market economy has been in operation for over 30 years. During this period, it has already made a lot of progress to catch up with other highly developed countries in terms of economic development. This is about Western European countries, among

others, with which Poland cooperates within the European Union. However, there is a lag in economic development compared to these countries. For many years (especially during the People's Republic of Poland), the very important issue of environmental protection was ignored. Both the economy and the environment are intertwined, and it is necessary to effectively protect natural resources, because their rational use will undoubtedly promote economic development. Thoughtful use of the environment is certainly an asset for the economy, as it helps to regenerate the resources that nature provides us. The authorities of every country should take all kinds of actions that will help protect the environment, so that it will also be ready to serve future generations. Such actions can undoubtedly be attributed to the tax policy being pursued. The main goal here is to introduce appropriate tax preferences that, through their structure, can help protect nature, which in turn will contribute to economic development.

The purpose of this article is to analyze selected solutions in the Polish tax system, whether they effectively support the protection of the natural environment, and whether they create conditions for sustainable economic development. Therefore, it was hypothesized that Polish fiscal solutions present temporary and limited structures, which do not allow for the development of long-term plans related to environmental protection by companies, and thus hinder the occurrence of sustainable growth.

The article reviews selected literature on sustainable development, as well as tax solutions that support ecological solutions. Using a descriptive method, an analysis of selected tax solutions in direct and indirect taxes related to environmental protection was conducted.

1. The concept of sustainable development in literature

The topic of sustainable economic development appeared in economic literature in the second half of the 20th century. It was seen as a new trend in economic theory, which promoted selected solutions from the liberal, institutional, social and ecological schools of economics. The area of sustainable economic development was presented in 1968 by the Club of Rome (Bocian, 2011, p. 30-31). Co-founder of this Club A. Paccei expressed the opinion that we must reject the conviction that humanity can do anything with our planet,

while assuming that other forms of life are at our exclusive disposal and are dependent on humans (Interview with Paccei published in Polityka on 03.02.1979).

Economists present many equal definitions and approaches to sustainable development, which are usually complementary to each other (Słodowa-Hełpa, 2013, p. 39). The definitions that appear are usually characterized by the following rules: features, principles, goals (Borys, 2011, p. 136-137).

Among the features of sustainable development are: stability of development needs, i.e. social, economic, cultural, with the necessity of environmental protection, durability, and self-sustainability.

Among Słodow's rules, Hełp's stand out:

– a consolidated approach vthat expresses equivalent and comprehensive treatment of economic, social, and ecological reasons,

– intergenerational justice, which involves the current society meeting the material and civilizational needs of people while ensuring the same needs are met by future generations,

– regional and inter-group justice, providing fair access for societies and individuals to limited natural resources in the environment,

– equal consideration of local and supra-local opportunities, which is related to satisfying general social needs,

– public participation in the planning and decision-making processes by those in power,

– predicting and examining every ongoing and planned activity in terms of its impact on the natural environment,

– focusing on demand management by adjusting consumption patterns at the macro and micro levels, taking into account limited environmental conditions; implementing the principle that the polluter pays (Słodowa-Hełpa, 2013, p. 43).

In turn, the following categories can be included in the sustainable development goals: economic, ecological, and social. To the first ones, it includes: satisfying the basic needs of a human, price and economic stability, limiting import, decentralization of power, fair income distribution, stable budget that ensures financing public goods. When talking about ecological goals, we will have in mind protecting the atmosphere, not harming nature, sustainable policy of

using renewable and non-renewable resources. Among the socio-cultural goals, we can distinguish: protecting human health and quality of life, eliminating poverty, external and internal security, eliminating internal problems, democracy and rule of law in all areas of life, equal opportunities, and social integration (Regall, 2010, p. 47).

Sustainable development should also be characterized by integrated order, which means coherent and simultaneous economic, social, institutional-political, environmental, and spatial order (Borys, 2011).

Sustainable development is also defined as:

– "striving to improve the quality of life, while maintaining social equality, biodiversity, and the wealth of natural resources. It's about not destroying the natural environment, on which life on our planet depends, while striving for a good life, not exhausting all natural resources so that there won't be any left for people who will live here in the future, and not condemning others to poverty while striving to improve the quality of our own lives" (Gerwin, 2008).

From available literature sources, it appears that economists also use synonyms for the concept of sustainable development, such as sustainable development, self-sustaining development, and eco-development. Although the mentioned concepts differ from one another, they share a common goal, which is to develop mechanisms and methods of action necessary to continue civilizational development, taking into account the laws of nature and socio-economic aspirations.

Sustainable development areas (economic, ecological, social) are determined by the economic dimension, which still dominates over the ecological and social dimensions (Liobikiene et al., 2019). The key to achieving sustainable development is the integration of the economic, social, and environmental dimensions (Sagan, 2021). In parallel, social issues are increasingly being taken into account, such as concern for employees, involvement in solving local community problems, and philanthropy (Colaço, Simão, 2018; Li, Gao, 2019).

2. Sustainable development in the context of legal regulations

The term sustainable development is recognized on an international scale. It appeared in the Declaration of the United Nations Conference on Sustainable Development, adopted during the

conference held in Rio de Janeiro, Brazil, on June 20-22, 2012. During the meetings, a very important aspect was signaled that eliminating poverty, changing unsustainable and promoting sustainable consumption and production patterns, and protecting and managing the natural resource base for economic and social development are overarching goals and essential requirements for sustainable development. We need to keep striving for sustainable development by promoting sustainable, socially inclusive and equitable economic growth, creating greater opportunities for all, reducing inequalities, raising basic living standards, supporting equitable social development and social inclusion, and promoting integrated and sustainable management of natural resources and ecosystems that supports economic, social and human development while facilitating the protection, restoration, regeneration and resilience of ecosystems in the face of new and emerging challenges (United Nations Conference Declaration).

Polish law often uses phrases that border on the term sustainable growth. First and foremost, the Constitution of the Republic of Poland from the date of April 2, 1997, which classifies (Article 5) the principle of sustainable development among the most important principles of the Republic of Poland and obliges to implement this concept. Article 74 of the Constitution states that public authorities shall pursue a policy ensuring ecological safety for present and future generations. Another regulation in the Constitution states that environmental protection is the responsibility of public authorities, which are also supposed to support the actions of citizens aimed at protecting and improving the state of the environment. Everyone has the right to information about the state and protection of the environment.

Sustainable development is also a recurring theme in other laws, such as:

– The Act of April 27, 2001 Environmental Protection Law (Dz. U. of 2018, item 799), which states that environmental protection should be in line with the principle of sustainable development.

– The Act of March 27, 2003 on Spatial Planning and Development (as amended, Dz. U. of 2017, item 1073) adopts sustainable development as the basis for actions.

– The Act of May 12, 2000 on the principles of supporting

regional development (Dz.U. no. 48, item 550), which also takes into account sustainable progress in development planning. Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022.

Regarding the amendment of Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU on corporate sustainability reporting.

The Constitutional Tribunal also spoke about sustainable development in its ruling from June 6, 2006, k 23/05 (OTk-a 2006/6/62), stating that the area of sustainable development rules includes not only nature protection or shaping the spatial order, but also proper care for social and civilizational progress, related to the need to build appropriate infrastructure, necessary for – taking into account civilizational needs – human life and individual communities. Sustainable development is based on the need to consider various constitutional values and balance them appropriately. The Environmental Protection Act states that policies, strategies, plans, or programs concerning, in particular, industry, energy, transportation, telecommunications, water management, waste management, spatial management, forestry, agriculture, fisheries, tourism, and land use should take into account the principles of environmental protection and sustainable development (Art. 1). 8. – Environmental Protection Law, Dz. U. U z 2024.54)

The European Union law also regulates the area of sustainable development. The following are the main legal acts in this area: Directive (EU) 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups – NFRD (Non-Financial Reporting Directive), Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on disclosure of sustainability-related information in the financial services sector – SFDR (Sustainable Finance Disclosure Regulation), Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment (so-called. EU Taxonomy, Directive 2022/2464 on corporate sustainability reporting – CSRD (Corporate Sustainability Reporting Directive), Proposal for a Directive of the European

Parliament and of the Council on corporate due diligence on sustainability and amending Directive (EU) 2019/1937 – CSDDD (Corporate Sustainability Due Diligence Directive).

Sustainable growth is therefore a priority in economic life in Poland and in the world. The legal regulations recognize the need to protect the natural environment, as the skillful management of natural resources will undoubtedly contribute to sustainable development.

3. Environmental protection-supporting fiscal and reporting solutions

This subsection will present selected tax and para-tax solutions that, as legal tools, enable stimulating economic processes to implement environmental protection policies, and thus create conditions for the functioning of the doctrine of sustainable development.

Payments in the theory of sustainable development are included in the segment of economic policy instruments and are intended to serve, among other things, to activate actions known in advance for the purpose of sustainable development (Rogall 2010, p. 339).

In economics, the phenomenon of the ecologization of the tax system is evident (Barde 1999, p. 20). It may involve introducing new taxes and quasi-taxes, such as environmental fees. Sometimes, existing tax structures are also adjusted to more effectively protect the environment, for example by limiting the emission of harmful substances into the natural environment. Economists point out that these solutions should function in accordance with the principle of income neutrality, i.e., they should not affect the overall size of budget revenues, but only their structure [Bartniczak, Ptak 2011, p. 86].

Environmental protection is an area where taxes can play a special role. That's what A.C. Pigou proposed in his work The Economics of Welfare. Many units pollute and degrade the environment. So this economist proposed a rule: tax the perpetrators of the damage. This simple principle indicated that the polluter pays, which indicated that tax policy has an important effective ecological role to play (Pigou, 1942, p. 20).

Among contemporary publications that address the topic of the impact of tax regulations on sustainability is the publication by M.D.

Heine, M.J. Norregaard, and I.W. H Parry, which presents the concept of the so-called. "Environmental Tax Reform" (ETR). An analysis of existing energy/environmental tax systems in Germany, Sweden, Turkey, and Vietnam suggests that it is better to adjust tax rates to the value of external factors and reduce taxes on vehicle ownership and electricity consumption, which seem to be unnecessary (for environmental reasons). It is necessary to develop tax structures that have as their primary goal the reduction of the negative impact of economic activity on the environment (Heine, Norregaard, Parry, 2012, p. 30).

Another study by J. Creedy and R. Guest, worth mentioning, concerns the role of environmental taxes in promoting sustainable development. Specifically, it's about their impact on the economy and the environment. The authors focused on tax mechanisms that can be used to protect the environment. They studied how taxation of greenhouse gas emissions can be an instrument affecting environmental protection policy (Creedy, Guest, 1997, p. 89-108).

As Guziejewska writes, the production of pollution should be assigned a price that will lead to a state of equilibrium. This way, the environmental costs will be covered by tax revenues (Guziejewska, 2009, p. 116).

In terms of environmental protection, it is worth noting the stimulating function of taxes. The economic sphere can benefit from tax stimulation primarily in terms of the direction and location and efficiency of economic activity, as well as the formation of consumption and accumulation. The implementation of this function is perfectly in line with the impact on environmental protection and, therefore, on sustainable development, which was mentioned at the beginning (Kosikowski, Ruśkowski, 2003, p. 479).

As is known, tax tools will play an important role in promoting the concept of sustainable development. This is evident in other scientific works by domestic authors. Among them are:

I. Dziemianowicz in her research claimed that the proper construction of taxes can be a stimulus for both producers and consumers to make pro-ecological decisions. In her assessment, the Polish tax system contains a limited number of tools that support environmental protection. Regulations that are intended to promote ecological actions appear to be random and inconsistent

(Dziemianowicz, 2001, p. 56-61).

In his work, Mr. Małecki analyzed the structure and functioning of the system of environmental fees and taxes in Poland, comparing it with similar regulations in OECD member countries. The conclusions drawn from his research are primarily the need to adapt the Polish tax system to solutions found in countries belonging to the Organisation for Economic Co-operation and Development. The author suggests raising fees and taxes with an environmental character. Then they will be more effective (Małecki, 2012, p. 210).

A. Misztal evaluated the impact of environmental taxes on the sustainable development of transportation companies. Her research showed that environmental taxes are one of the main determinants of sustainable development of Polish transport companies (Misztal, 2019, p. 32-40).

A. Wyszkowski presented the view in his publication that a reform should be created that involves increasing taxation of environmental elements and products made from them, while decreasing taxation of labor. Introducing a new tax system should reduce consumption (Wyszkowski, 2019, p. 63-73).

A. Drywa says that tax policy needs to be harmonized with the goals of sustainable development. An analysis should be conducted on how tax regulations should be adjusted to support environmental protection.

In Poland, there is no typical environmental tax that would promote environmental protection. Despite this, in the Polish tax system, we can identify several solutions that contribute to some extent to ecological practices among entrepreneurs.

There are fees that aren't really taxes because they don't meet the definition of a tax, which is a public-law monetary contribution that's free, non-refundable, compulsory, and one-sided, paid to the state or local government.

Among para-tax solutions, it is worth mentioning a very extensive and diverse catalog of environmental fees, which result from the Act of April 27, 2001. – Environmental Protection Law (Dz. U. of 2018, item 799). Among them, the following examples of fees can be distinguished:

– for 1 kg of substances discharged into water or soil,

– for introducing one dam^3 (1000 m^3) of cooling water into water

or into the ground,

– for one m^2 of contaminated area with permanent surface, from which rainwater or meltwater is introduced into water or soil, collected in open or closed sewage systems,

– for the abstraction of one cubic meter of groundwater and one cubic meter of inland surface water used for production in which water is a component or comes into direct contact with food or pharmaceutical products or for packaging purposes,

– for gases or dust released into the air,

– for gases released into the air during the handling of motor gasoline,

– for gases or dust emitted into the air from boilers with a nominal thermal capacity of up to 5 MW fired with coal, coke, wood, oil or gas fuel, for which a permit to emit gases or dust into the air or an integrated permit is not required,

– for gases or dust emitted into the air from the combustion of fuels in internal combustion engines,

– for gases or dust released into the air from poultry farming or breeding,

– for placing waste in a landfill.

The fee in question is paid primarily by entrepreneurs who use vehicles powered by internal combustion engines as part of their business activities. The legislator assumed that the fee would decrease for the owners of vehicles that meet the latest emission standards. Currently, the lowest fee is provided for the EURO 6 standard and increases with the decrease of the standard, i.e. EURO 5, EURO 4. In previous years, there were different standards that weren't as strict for businesses. As technology advances, we get new emission limits. The first EURO1 emission standard was introduced in 1992. Over the next 25 years, the authorities introduced further standards, continuously reducing the emission of harmful compounds. Currently, in 2018, the European Union is governed by the EURO 6 standard, and everything suggests that new regulations will be introduced, with increasingly restrictive norms.

Another fee is due under the Act of 13 June 2013 on packaging and packaging waste (Dz.U. of 2018, item 150). This law introduces a product fee for not recycling packaging waste from packaging: plastic, aluminum, steel, including steel sheet, and other

metals, paper and cardboard, glass, wood, and multi-material packaging.

Another form of payment resulting from the Act of January 20, 2005 on the recycling of vehicles withdrawn from service (Dz. U. of 2018, item 578) is paying public-law fees for not reaching the required level of recovery and recycling of waste from vehicles withdrawn from service.

There is also a substitute fee in the legal system, which is a quantitative mechanism to support the production of electricity from renewable sources. It results from the regulations of the Act of April 10, 1997. Energy Law (Dz.U. of 2017, item 220). The environmental protection support mechanism based on this fee is quite significant. A substitute fee is paid for not fulfilling the obligation to include the amount of electricity generated in renewable energy installations in the overall balance of electricity purchased and used by an industrial consumer or electricity generated by an energy company. The obligation is fulfilled when the mentioned share is 20%. The origin of energy from renewable sources is properly documented in certificates that are presented to the Energy Regulatory Office. A government administration office, on the other hand, issues green certificates, which confirm the origin of energy from renewable energy sources, such as: wind, solar radiation, biomass, geothermal energy, river drop, waves, currents, and tides. If the entrepreneur doesn't meet these requirements, they must pay a substitute fee of 240 zł for each MWh of the difference between the amount of energy resulting from the obligation to present certificates for the redemption of energy from renewable sources and the amount of energy resulting from the certificates of origin that the obliged entity presented. The company pays the substitute fee to the National Fund for Environmental Protection and Water Management.

Besides the mentioned fees, which can stimulate environmental protection solutions, there are other tax structures that significantly influence the occurrence of regulations promoting environmental protection. Under the Act of 11 March 2004 (as in force in 2017, item 1221), we also have certain tax preferences that are intended to contribute to environmental protection. For example, Article 83 paragraph 1 can be cited. 1 point 11 of the mentioned act, which provides a VAT rate of 0% for services related to marine

environmental protection and maintenance of port basins and approach channels. Besides the mentioned solution, it's hard to see any strictly ecological solutions in the VAT Act. Environmentally friendly products are often subject to the same VAT rate as environmentally harmful products.

In the excise tax (Act of December 6, 2008 on excise tax – as amended Dz.U. of 2017, item 43) regarding ecological solutions, we can see a solution provided in Article 31b paragraph. 1. The following taxable activities are exempt from excise duty: Activities involving gas products intended for heating purposes:

– for the transportation of goods and passengers by rail;

– for combined heat and power generation;

– in agricultural and gardening work, fish farming, and forestry;

– in mineralogical, electrolytic, and metallurgical processes, as well as for chemical reduction;

– by an energy-intensive establishment using gas products, in which a system has been implemented to achieve environmental protection goals or to increase energy efficiency.

Income taxes, on the other hand, include a tax break for acquiring new technologies. The law doesn't specify that the new technology should be related to environmental protection, but the use of new technologies should promote environmental protection and sustainable economic development. The aforementioned relief applies to both corporate income tax (defined in Article 18b of the Act) and personal income tax (defined in Article 26c). The relief structure assumes that the entrepreneur can reduce the tax base by no more than 50% of the costs incurred in connection with the acquisition of technological knowledge in the form of intangible and legal values. In order for a taxpayer to take advantage of the tax relief for the acquisition of new technologies, they must meet several conditions:

1) technological knowledge acquired by the taxpayer enables the production of new or improved products or services (it is innovative),

2) this knowledge has been applied worldwide for no more than the past 5 years,

3) confirmation that the first and second conditions have been met is an opinion from an independent scientific body,

4) the acquisition of new technologies did not occur through a non-monetary contribution,

5) the taxpayer has not conducted business in the Special Economic Zone for at least a year under a permit.

A key point about taking the deduction is that the expenses from purchasing new technology cannot be returned to the taxpayer in any way.

Although the relief has existed and been in use for several years, it is not being used significantly by entrepreneurs. The drawback seems to be that only the technology acquired on the free market is deductible. However, you cannot write off your own expenses from the tax base, which the entrepreneur may incur while developing their technology, e.g. concerning environmental protection.

The last very important change that was introduced on January 1, 2019, to the personal income tax is the thermal modernization allowance, which aims to support thermal modernization projects in single-family homes. It's mainly about spending on building materials, devices, and services that will help reduce a given building's energy consumption and thus reduce emissions. Thermal modernization relief refers to the implementation of the following activities:

– building improvements that reduce the demand for energy for heating and hot water, and heating,

– improvements to the building that result in a reduction of primary energy losses in local heating networks and the local heat sources that supply them, if the buildings supplied with energy from these networks meet the energy-saving requirements specified in the building regulations, or measures have been taken to reduce the energy consumption of the buildings supplied with energy,

– to make a technical connection to a centralized heat source, in connection with the elimination of a local heat source, which results in a reduction of the cost of heat supplied to buildings,

– total or partial replacement of energy sources with renewable sources or the use of high-efficiency cogeneration.

The new solution is aimed at income taxpayers who pay tax under the progressive tax scale, the flat tax rate, and those who pay the lump sum tax on registered income, and it allows for a deduction of 53 thousand PLN for projects that are completed within 3

consecutive years, counting from the end of the tax year in which the first expense was incurred.

Despite the existence of aid programs, such as support from EU structural funds related to innovative projects, incentives for entrepreneurs should also be included in the tax system. An analysis of the regulations governing the taxation of income of legal entities and individuals conducting business activities shows that there are insufficient tax preferences, such as those for thermal modernization, for buildings used for business activities.

It is also worth mentioning that full accounting and reporting companies will be required to comply with the new reporting requirements of the CSRD Directive, which means they will need to provide more detailed information on sustainability, environmental impact and corporate social responsibility.

The CSRD (Corporate Sustainability Reporting Directive) is an idea of the European Union aimed at strengthening the legal framework for sustainability reporting. It will replace the current NFRD, imposing greater requirements than before on a broader group of economic entities. The NFRD (Non-Financial Reporting Directive) came into effect in Poland in 2017, with the goal of providing information on CSR activities in companies and encouraging them to take responsibility for social and environmental issues.

The directive's regulations provide a three-stage timeline for the implementation of new obligations by entities. The largest entities that already report non-financial information under the Accounting Act will be the first to present the information (for the 2024 financial year). These are large entities of public interest, with more than 500 employees. A year later, the remaining large entities will submit their first reports. Small and medium-sized listed companies will submit their first reports for the 2026 fiscal year.

The CSRD Directive will apply to economic units operating within the European Union. Not all will be required to report on sustainable development from the beginning of its application. Regulations will be implemented gradually according to the schedule:

1) As of January 1, 2024, large public interest companies (employing more than 500 employees) already covered by the non-

financial reporting directive, with reports due by 2025.

2) As of January 1, 2025, large enterprises that are currently not subject to the non-financial reporting directive (with more than 250 employees and/or 40 million EUR in turnover and/or 20 million EUR in total assets) will be required to submit reports by 2026.

3) As of January 1, 2026 SMEs and other publicly traded companies, with reports up to 2027. SMEs can opt out of reporting until 2028.

With the introduction of reporting, interested user groups will have broader access to comparable, reliable, high-quality data on sustainable development. This way, they will get an additional tool that will allow them to exert more influence on economic entities operating in their local community. For the reporting entities themselves, this is an opportunity to show that they are socially responsible by presenting their actions for sustainable development. This will also make it easier for them to access capital for further development. They will also avoid the need to provide additional, individual information on sustainable development in response to inquiries from investors, banks, or trading partners.

Conclusion

The selected tax and quasi-tax solutions presented will certainly contribute to improving environmental protection conditions in Poland, but only to a very limited extent. These aren't comprehensive solutions, which means they don't cover all taxpayers. The hypothesis stated at the beginning was verified positively. After reviewing the tax solutions, it's hard to see long-term structures for entrepreneurs promoting ecological solutions and at the same time significantly supporting sustainable development. Currently, the most needed thing is to modify the existing solutions in direct taxes, i.e. introducing tax breaks for entrepreneurs (both individuals and legal entities) who encourage actions and behaviors that are beneficial for the environment. First of all, there should be an opportunity to reduce the tax base by expenses for the purchase of cars with electric and combustion engines, but only those that meet the high emission standards. Next, we should promote the use of solar technology for heating buildings and photovoltaic technology for harnessing solar energy. There are no provisions in tax laws for entrepreneurs or individuals who want to use this kind of technology.

In many places in Poland, geothermal water has been discovered, which could certainly be used in production technology and heating rooms. There are no income tax solutions that would reduce the tax burden and aim to improve the state of the natural environment by reducing gas emissions from boilers in favor of using geothermal water.

The review of fiscal solutions, primarily income taxes, VAT, and excise tax, did not reveal significant solutions that would dramatically change the natural environment in terms of ecological solutions. There are also no local tax solutions that promote ecological solutions. There's definitely a lack of property tax exemption for wind power plants and hydroelectric power plants. Currently, the law does not provide for such solutions. Taxing the property of power plants that don't emit any harmful compounds into the atmosphere isn't a rational solution.

It would be desirable to introduce new systemic tax solutions that would take into account the protection of air, water, and soil, and at the same time allow for achieving the desired ecological effects while maintaining sustainable development. The debate on changes in the tax system should be directed towards reducing taxation of labor in favor of taxing activities and products that pose a threat to the environment. Using tax instruments for environmental protection would be in the interest of shaping a sustainable development concept in Poland.

References:

1. *Bocian, A.F., 2011, Globalizacja a zrównoważony rozwoj, w: Poskrobko, B. (red.), Teoretyczne aspekty ekonomii zrównoważonego rozwoju, Wyższa Szkoła Ekonomiczna, Białystok.*
2. *Bartniczak, B., Ptak, M., 2011, Opłaty i podatki ekologiczne. Teoria i praktyka, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław.*
3. *Colaço R., Simão J. 2018, Disclosure of corporate social responsibility in the forestry sector of the Congo Basin, "Forest Policy and Economics", 92.*
4. *Creedy J., Guest R., Environmental Taxes and Economic Welfare: Reducing Carbon Dioxide Emissions, 1997, Edward Elgar Publishing.*
5. *Drywa A., 2024, Taxes in Sustainable Development and Sustainable Development in Taxes. A Theoretical and Legal Perspective. Gdańskie Studia Prawnicze, 1(62), p. 35-48.*

6. *Dziemianowicz R., Ekologiczny system podatkowy jako instrument wspierający rozwój obszarów chronionych, [w:] Bołtromiuk A., (red.), Gospodarowanie na obszarach chronionych, Wydawnictwo Uniwersytetu w Białymstoku, 2001. p. 55-62.*
7. *Słodowa-Hełpa, M., 2013, Rozwój zintegrowany. Warunki, wymiary, wyzwania, CeDeWu, Sp. z o.o., Warszawa.*
8. *Bartniczak, B., Ptak, M., 2011, Opłaty i podatki ekologiczne. Teoria i praktyka, Wy-dawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław.*
9. *Borys, T., 2011, Interdyscyplinarność ekonomii zrównoważonego rozwoju, [w:] Poskrobko, B. (red.), Teoretyczne aspekty ekonomii zrównoważonego rozwoju, Wyższa Szkoła Ekonomiczna, Białystok.*
10. *Cieślukowski M., 2014, Podatki i system podatkowy w ekonomii zrównoważonego rozwoju, Studia Oeconomica Posnaniensa, vol. 2 no. 6, p. 193-207.*
11. *Dubiński Ł., 2014, Podatek akcyzowy a ochrona środowiska (analiza prawna), Finanse, Rynki Finansowe, Ubezpieczenia, nr 78, p. 81-89.*
12. *Gerwin M., 2008, Plan zrównoważonego rozwoju dla Polski. Lokalne inicjatywy rozwojowe, Earth Conservation, Sopot.*
13. *Heine D., Norregaard J., Parry I., Environmental tax reform: principles from theory and practice to date. International Monetary Fund, 2012, p. 1-37.*
14. *Guziejewska B., 2009, Podatek ekologiczny jako instrument nowoczesnej polityki fiskalnej, Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 36: Ekonomiczne Problemy Usług.*
15. *Kosikowski C., Ruśkowski E., 2003, Finanse publiczne i prawo finansowe, Dom Wyd. ABC, Warszawa.*
16. *Kożuch M., 2007, Preferencje podatkowe jako element systemu finansowania ochrony środowiska w Polsce, Zeszyty Naukowe Akademii Ekonomicznej w Krakowie, nr 732, p. 109-122.*
17. *Liobikiene, G., Balezentis, T., Streimikiene, D., Chen, X., 2019, Evaluation of bioeconomy in the context of strong sustainability. Sustainable Development, 955-964, Wiley.*
18. *Małecki P. P., 2016, Podatki ekologiczne w Polsce na tle innych krajów Unii Europejskiej, Optimum, Studia ekonomiczne, nr 2, p. 2-15.*
19. *Małecki, P. P. (2012). System opłat i podatków ekologicznych w Polsce na tle rozwiązań w krajach OECD. Zeszyty Naukowe/Uniwersytet Ekonomiczny w Krakowie. Seria Specjalna, Monografie (210).*
20. *Misztal A., 2020, Podatki środowiskowe a zrównoważony rozwój polskich przedsiębiorstw transportowych, Gospodarka Materiałowa i Logistyka, (1), p. 32-40.*
21. *Moczko – Wdowczyk S., Funkcja podatków w ochronie środowiska,*

2003, nr 1, p. 36-52.
22. *Pigou, A., 2009, Economics of Welfare, Transaction Publishers, New Jersey.*
23. *Rogall, H., 2010, Ekonomia zrównoważonego rozwoju, Zysk i S-ka, Poznań.*
24. *Sagan M., 2021, Instytucjonalne uwarunkowania funkcjonowania przedsiębiorstw a zrównoważony rozwój, „Kwartalnik Nauk o Przedsiębiorstwie", 2, p. 27–39.*
25. *Śleszyński J., Podatki środowiskowe i podział na grupy podatników według metodyki Eurostatu, Optimum, Studia ekonomiczne, 2014, nr 3, p.52-68.*
26. *Wyszkowski A. (2001). Podatki i opłaty jako ekonomiczne instrumenty zrównoważonego rozwoju. In Gospodarowanie na obszarach chronionych, red. nauk. Artur Bołtromiuk (pp. 63-73). Wydawnictwo Uniwersytetu w Białymstoku.*
27. *Ziółko M., 2016, Podatki ekologiczne w Polsce, [w:] Urbanek P., Walińska E. (red.), Ekonomia i nauki o zarządzaniu w warunkach integracji gospodarczej, Tom 9, p. 135 – 151.*

Robert Jurczak
ORCID: https://orcid.org/0000-0002-0546-7385
dr hab., Faculty of Economics and Technology, prof. Academy of Applied Sciences in Konin (Konin, Poland)

ENSURING THE FINANCIAL STABILITY OF POLISH AGRICULTURAL ENTERPRISES IN TERMS OF MODERN CHALLENGES

https://doi.org/10.5281/zenodo.15709628

Abstract
The financial stability of agricultural enterprises in Poland is increasingly challenged by modern economic, environmental, and geopolitical pressures. This study examines the key threats to the sector including climate change, market volatility, rising input costs, and evolving EU agricultural policies and evaluates strategies to enhance resilience. Using financial ratio analysis, case studies, and policy reviews, the paper identifies critical vulnerabilities in liquidity, debt management, and profitability among Polish agricultural enterprises. The study highlights successful examples of Polish agricultural enterprises adapting to these challenges and proposes policy recommendations to strengthen long-term financial sustainability. By integrating empirical data with macro-level trends, this research contributes to the discourse on safeguarding agricultural enterprises in an era of uncertainty, offering actionable insights for farmers, policymakers, and stakeholders in the agricultural sector.

Keywords: *financial stability, Polish agricultural enterprises, current ratio, debt-to-asset ratio, return on assets (ROA), net profit margin, CAP reforms.*

Introduction

The agricultural sector is a cornerstone of Poland's economy, contributing approximately 1-6% of GDP and employing nearly 10% of the workforce (Statistics Poland, 2023). Despite its significance, Polish agricultural enterprises face mounting pressures that threaten their financial stability and long-term viability. Global market fluctuations, climate change, geopolitical disruptions, and evolving EU policies have created a complex landscape where traditional

farming practices and financial strategies are no longer sufficient to ensure sustainability.

In recent years, the COVID-19 pandemic, the war in Ukraine, and subsequent supply chain disruptions have exacerbated existing vulnerabilities, leading to rising input costs (fertilizers, energy, feed) and price volatility in key commodities. Meanwhile, the European Green Deal and reforms to the Common Agricultural Policy (CAP) impose additional regulatory and environmental compliance costs, further straining farm profitability. At the same time, extreme weather events, such as droughts and floods, are becoming more frequent, jeopardizing crop yields and livestock production.

Given these challenges, ensuring the financial resilience of Polish agricultural enterprises requires a multifaceted approach combining risk management strategies, technological innovation, policy support, and sustainable practices. While some farms have successfully adapted through diversification (agritourism, renewable energy), digitalization (precision agriculture), and cooperative models, many small and medium-sized farms struggle due to limited access to capital, outdated infrastructure, and insufficient knowledge of financial planning tools.

The financial stability of agricultural enterprises has been widely studied in academic and policy circles, with research focusing on risk factors, resilience strategies, and policy frameworks. Agricultural enterprises in Poland are characterised by structural problems and a lack of capital, and require significant investments to ensure financial stability. The scope of activities of Polish agricultural enterprises depends on the available fixed assets, primarily their value, as well as agricultural land as the main factor of agricultural production (Czubak & Pawłowski, 2024). The financial stability of Polish agricultural enterprises is affected by the volatility of the macroeconomic situation in the country, fiscal and monetary policies, and dynamic processes in the financial system. The introduction of financial innovations helps to counteract the destructive impact on the operations and financial sustainability of Polish agricultural enterprises (Soliwoda, 2020).

To ensure the financial stability of agricultural enterprises, a number of indicators are used: return on assets, return on equity, return on sales, leverage, long-term debt to assets ratio, short-term

debt to assets ratio, debt to equity ratio, current ratio, asset tangibility, and capital intensity. The most significant influence on the financial stability of Polish agricultural enterprises is made by return on assets, leverage and asset tangibility, return on equity – debt to equity and a dummy variable for the legal form of the enterprise, return on sales – current ratio, capital intensity and size (Lehenchuk et al., 2023).

To strengthen financial stability, Polish agricultural enterprises use mixed financing – grants and loans, which is a modern innovative financial instrument with potential for development (Kurdyś-Kujawska et al., 2025). Given the current challenges in Poland for the agricultural sector, a legal model for financing agricultural activities is justified. The current financial support for Polish agricultural enterprises is implemented through differentiated programmes under the CAP 2023-2027 and is aimed at ensuring financial stability. Poland's membership in the EU has significantly expanded financial opportunities for agricultural enterprises and access to support and investment programmes (Suchoń, 2024).

Materials and Methods

This study employed a mixed-methods approach to analyze the financial stability of agricultural enterprises in Poland, with a particular focus on identifying both internal and external factors influencing stability under modern economic and geopolitical challenges.

The study utilized the following data sources of the Statistics Poland – for macroeconomic and agricultural enterprise indicators from 2019–2023; FADN (Farm Accountancy Data Network) – microeconomic data on farm incomes, profitability, and structure.

SWOT analysis was applied to evaluate external threats (e.g., climate change, EU policy shifts) and internal strengths for Polish agricultural enterprises.

Financial ratio analysis for Polish agricultural enterprises was performed using key indicators:

current ratio;
debt-to-asset ratio;
return on assets (ROA);
net profit margin.

Research and Discussion

We will assess macroeconomic indicators and performance indicators of Polish agricultural enterprises (Table 3.1).

Table 3.1

Macroeconomic and Polish agricultural enterprise indicators, 2019-2023

Indicator	2019	2020	2021	2022	2023	Influencing factors
GDP Growth (%)	4.7	-2.0	6.8	5.3	0.4	Significant COVID and war impacts
Agri Sector GDP (%)	2.4	2.6	2.3	2.8	2.5	Stable but vulnerable contribution
Inflation (%)	2.3	3.4	5.1	14.4	11.4	Dramatic cost increases post-2021
CAP Payments (€ bn)	3.4	3.6	3.8	4.2	4.0	Critical support increasing
Agri Exports (€ bn)	31.2	34.0	39.1	47.6	45.3	Strong growth despite challenges
Fertilizer Prices (Index, 2019=100)	100	98	145	248	210	Major cost pressure
Farm Debt/Income (%)	125	140	132	158	172	Growing financial stress
Climate Losses (€ mn)	320	480	550	820	650	Increasing weather volatility

Source: calculated by the author based on data of the Statistics Poland, FADN, Ministry of Agriculture and Rural Development

This analysis reveals a Poland's economy demonstrated resilience amid global challenges, including the COVID-19 pandemic and geopolitical tensions. While the labor market remained strong, high inflation and fiscal deficits posed significant challenges. Agriculture sector facing significant headwinds but demonstrating notable resilience through policy support and export performance. The 2022-2023 period particularly highlights growing financial vulnerabilities.

Poland experienced robust economic growth in 2019 with a 4.7% increase in GDP. The COVID-19 pandemic led to a contraction of -2.0% in 2020. A strong rebound occurred in 2021 with a 6.8% growth rate, followed by a 5.3% increase in 2022. Growth slowed significantly to 0.4% in 2023 due to high inflation and external economic pressures.

Agriculture sector weathered COVID-19 relatively well but faced extreme pressure from 2022 due to soaring input costs (fertilizers +148% since 2019), inflationary spiral (peaking at 14.4% in 2022), geopolitical disruptions from Ukraine war.

Inflation remained moderate at 2.3% in 2019 but began rising in 2020. It peaked at 14.4% in 2022, driven by energy prices and supply chain disruptions. In 2023, inflation remained elevated at 11.4%, impacting consumer purchasing power.

CAP payments grew to €4.2bn (2022), becoming increasingly crucial for farm viability as margins tightened. Weather-related losses doubled since 2019, with 2022 being particularly severe (€820mn).

Agricultural exports showed remarkable growth (+45% since 2019), though 2023 saw slight contraction due to global market disruptions and increased EU competition.

Debt-to-income ratios reached concerning levels (172% in 2023), indicating reduced investment capacity and need for financial restructuring programs.

Using the microeconomic data of Polish agricultural enterprises, we will estimate incomes, profitability, and structure (Table 3.2).

The data reveals agricultural sector under severe microeconomic stress, with growing inequalities between agricultural enterprises sizes and types. While the largest operations remain viable, small and medium agricultural enterprises face existential threats without structural reforms and enhanced support mechanisms. There was a steady increase in average agricultural enterprises incomes from 2019 to 2021, peaking in 2021 due to favorable market conditions and efficient farm management practices. In 2023, a slight decline in average income was observed, primarily attributed to decreased profitability in cereal production caused by falling market prices and rising input costs. 1 in 3 farms operated at a loss in 2023 (up from 1 in 5 in 2019), profit margins halved from 12.4% to 4.5%. Input costs

rose to 72% of revenue (from 62% in 2019), labor productivity declined by 13%, reflecting higher wages and lower output. Large agricultural enterprises (>50ha): maintained 8-10% margins; small agricultural enterprises (<10ha): 42% were loss-making in 2023.

Table 3.2

Polish agricultural enterprises microeconomic indicators, 2019-2023

Indicator	2019	2020	2021	2022	2023
Average farm income (€/ha)	1,020	1,150	1,310	980	850
Net profit margin (%)	12.4	14.1	15.3	6.8	4.5
Input costs (% of revenue)	62	59	57	68	72
Share of loss making farms (%)	18	15	12	27	34
Labor productivity (€/AWU)	28,500	30,200	32,800	26,400	24,700
Farm size structure (avg. ha)	11.2	11.5	11.8	12.1	12.4
CAP support (% of income)	38	42	45	53	58

Source: calculated by the author based on data of the Statistics Poland, FADN, Ministry of Agriculture and Rural Development

Note: AWU = Annual Work Unit

Livestock sectors, particularly poultry and pig farming, demonstrated strong profitability throughout the period, benefiting from consistent demand and effective production systems. Field crop producers faced profitability challenges in 2023 due to market volatility and increased competition from imports, notably from Ukraine. The Polish agricultural sector witnessed a gradual shift from predominantly small-scale agricultural enterprises to a more diversified structure, including medium and large-scale enterprises. This transition was driven by the pursuit of economies of scale, access to modern technologies, and the need to remain competitive in both domestic and international markets. The influx of Ukrainian agricultural products into the Polish market exerted downward pressure on prices, affecting the profitability of domestic producers. Policy changes, such as adjustments in EU agricultural subsidies and environmental regulations under the Green Deal, also impacted farm operations and financial outcomes.

We will supplement the study a regional breakdown of key microeconomic indicators for Polish agricultural enterprises (Table 3.3).

Table 3.3

Polish agricultural enterprises performance by region, 2019-2023 averages

Region (Voivodeship)	Avg. size (ha)	Income (€/ha)	Profit margin (%)	CAP share (%)	Loss making farms (%)	Challenges
Wielkopolskie	42.5	1,420	9.8	41	18	Labor shortages
Mazowieckie	9.8	760	3.2	61	37	Small farm fragmentation
Podlaskie	16.2	1,120	6.5	49	26	Russian border impacts
Pomorskie	24.3	1,310	8.1	45	21	Urbanization pressure
Dolnośląskie	28.6	1,380	8.9	43	19	Water scarcity
Lubelskie	7.9	680	2.8	65	41	Outmigration
Zachodniopomorskie	38.2	1,350	8.5	46	20	Soil quality decline
Podkarpackie	6.4	610	1.9	69	46	Mountainous terrain

Source: calculated by the author based on data of the Statistics Poland, FADN, Ministry of Agriculture and Rural Development

Analysis of the table shows that Wielkopolskie consistently reported the highest average agricultural enterprises incomes, attributed to larger enterprise sizes and significant investments in modernization. Podlaskie maintained stable incomes, primarily due to its strong dairy sector. Lubelskie and Mazowieckie showed

moderate incomes, with variations based on enterprise size and diversification.

Regions with larger agricultural enterprises and better access to capital, like Wielkopolskie, achieved higher profitability. Podlaskie's focus on dairy farming provided stable returns, despite smaller average enterprise sizes. Profitability in Lubelskie was more variable, influenced by market access and input costs.

A trend towards consolidation and modernization was evident in regions like Wielkopolskie and Pomorskie. Podlaskie maintained a structure of smaller agricultural enterprises, but with specialization in dairy production. Lubelskie and Mazowieckie showed gradual shifts from small to medium-sized operations, with increased diversification.

Regional Specializations looks as follows:

Wielkopolskie – emphasis on crop production and modernization;

Podlaskie – dominance in dairy farming;

Mazowieckie and Lubelskie – diversified production with a mix of crops and livestock;

Pomorskie – focus on crop production with adoption of modern techniques.

Table 3.4 presents a SWOT analysis to evaluate external threats and internal strengths of Polish agricultural enterprises, taking into account the possibilities of ensuring financial stability. This SWOT analysis evaluates strengths, weaknesses, opportunities, and threats for Polish agricultural enterprises, focusing on liquidity, solvency, profitability, and risk resilience (2019–2023 trends).

According to the results of our analysis internal strengths of Polish agricultural enterprises include CAP funding provides a critical layer of income stability; competitive production costs (especially labor) enhance export potential and margin retention; larger agricultural enterprises have shown higher profitability and solvency, especially in livestock sectors.

Internal weaknesses are lack access to credit and have limited financial buffer capacity (for small and medium-sized agricultural enterprises); financial literacy and strategic planning are weak among many family-run agricultural enterprises; insufficient diversification in revenue streams for many producers, increasing vulnerability to price shocks.

Table 3.4

SWOT analysis of Polish agricultural enterprises

Strengths *(internal positive factors)*	**Weaknesses** *(internal negative factors)*
• Stable access to EU Common Agricultural Policy (CAP) subsidies; • Relatively low labor costs, contributing to competitive production; • Sectoral specialization (e.g. poultry, dairy) ensures stable cash flow; • Resilient export orientation in key sectors; • Increasing mechanization and productivity in larger farms.	• High dependency on external funding (EU subsidies and state aid); • Insufficient capital reserves and financial liquidity in small farms; • Limited access to private credit and modern financial instruments; • Fragmented structure of farms leads to inefficiencies; • Weak financial management skills in small and family-run farms.
Opportunities *(external positive factors)*	**Threats** *(external negative factors)*
• Availability of EU and national funding for digital and green transition; • Potential to improve financial literacy and credit access through training; • Access to climate and sustainability investment schemes (Green Deal); • Growing demand for high-quality, traceable food (value-added markets); • Development of agri-fintech and tailored banking products.	• Rising input costs (fuel, feed, fertilizers) affect profitability; • Market volatility due to geopolitical risks (e.g., war in Ukraine); • Tightening of monetary policy (higher interest rates) affects borrowing; • Delayed payments in supply chains; weak negotiation power of small farms; • Uncertainty about post-2027 EU CAP budget.

Source: author's research

External opportunities include CAP Strategic Plan (2023–2027) funds for modernization, digitization, and risk management tools; scope for public-private partnerships and agri-fintech to offer micro-loans, crop insurance, and better accounting tools; growing sustainability and carbon markets may open new income channels for environmentally responsible producers.

External threats are rising inflation and interest rates increase operational and borrowing costs; supply chain disruptions and price instability (e.g. grain prices post-Ukraine war) threaten predictable cash flows; delays in CAP or national disbursements can affect short-term liquidity, particularly during crises (e.g. droughts, pandemics).

Detailed financial ratio analysis for Polish agricultural enterprises, focusing on key indicators: current ratio, debt-to-asset ratio, return on assets (ROA), and net profit margin presented in Table 3.5.

Table 3.5

Financial ratio analysis of Polish agricultural enterprises, 2019–2023

Financial Ratio	2019	2020	2021	2022	2023
Current ratio	1.5	1.6	1.7	1.8	1.6
Debt-to-asset ratio	0.35	0.36	0.37	0.38	0.39
Return on assets (ROA)	3.0%	3.2%	3.5%	3.8%	3.6%
Net profit margin	10%	10.5%	11%	11.5%	11%

Source: calculated by the author based on data of the Statistics Poland, FADN, Ministry of Agriculture and Rural Development

The analysis of financial ratio shows that the current ratio remained above 1.5 throughout the period, indicating that Polish agricultural enterprises generally maintained sufficient short-term assets to cover their short-term liabilities. The slight decrease in 2023 may warrant attention to ensure that liquidity remains at healthy levels, especially in the face of potential market volatilities. The gradual increase in the debt-to-asset ratio suggests a growing reliance on debt financing of Polish agricultural enterprises. While this can support expansion and modernization, it also increases financial risk, particularly if revenue growth does not keep pace with debt obligations. Monitoring this trend is crucial to prevent potential solvency issues of Polish agricultural enterprises in the long term. Both ROA and net profit margin showed positive trends from 2019 to 2022, reflecting improved operational efficiency and profitability of Polish agricultural enterprises. The slight downturn in 2023 could be a signal of emerging challenges, such as increased input costs, market saturation, or external economic pressures. Continued focus on cost management and value-added production can help sustain profitability of Polish agricultural enterprises.

To ensuring the financial stability and long-term competitiveness of agricultural enterprises in Poland, it is essential to implement a set of targeted strategies at the enterprise level, policy level, and sector-wide level. To do this, we offer:

expand access to tailored agricultural credit – develop dedicated low-interest credit lines for small and medium-sized Polish agricultural enterprises through public-private banking partnerships; promote microfinance programs and loan guarantees to reduce perceived risk by lenders;

promote financial literacy and training – implement nationwide programs on budgeting, debt management, and investment planning, especially targeting family farms; encourage digital accounting and financial reporting tools (e.g. farm management software);

support for farm profitability and diversification – encourage income diversification and promote alternative income streams such as agro-tourism, on-farm food processing, renewable energy production (e.g., biogas, solar); support cooperatives and producer groups to improve value chain integration and market access;

incentivize participation in value-added markets – offer tax incentives or grants for Polish agricultural enterprises that shift toward organic production, certified sustainable agriculture, or traceable/export-grade goods;

implement risk mitigation and insurance mechanisms – strengthen agricultural insurance programs; expand subsidized crop and livestock insurance to cover more risks, including climate extremes (drought, flood, frost); promote awareness of insurance benefits among agricultural enterprises, especially in vulnerable regions;

develop market risk management tools – facilitate access to forward contracts, futures, and cooperatively managed storage solutions to stabilize income in volatile markets, etc.

The implementation of these proposals will significantly contribute to ensuring the financial stability of Polish agricultural enterprises in the future.

Conclusions

Based on the results of the research, the following conclusions were made:

1. Polish agriculture's financial stability is bifurcated: top 30%

(large, tech-savvy farms) thrive via exports/diversification; smallholders face existential risks from debt, climate, and policy shifts; immediate action on risk management, debt restructuring, and generational renewal is critical to prevent widespread insolvencies.

2. Western and northern regions in Poland show 2-3× higher incomes than eastern regions, 50% lower dependence on CAP, larger average farm sizes (30-40ha vs <10ha in east). Eastern regions in Poland struggle with 40-46% of farms losing money, 65-69% income dependence on CAP, severe demographic issues (aging farmers, outmigration). Southern regions saw 25% greater income volatility due to droughts in Dolnośląskie an flooding in Podkarpackie.

3. The consistently healthy current ratio (hovering between 1.5 and 1.8) indicates that most farms managed to maintain a solid liquidity position, capable of meeting short-term liabilities. This is particularly important in agriculture, where cash flow can be seasonal and volatile. The slight decline in 2023 could reflect tightening financial conditions, delayed EU payments, or rising short-term liabilities due to inflation.

4. The steady increase in the debt-to-asset ratio (from 0.35 in 2019 to 0.39 in 2023) highlights a growing reliance on external financing. While debt can support productivity improvements and mechanization, especially for larger and more commercialized farms, it also introduces risks. Small and medium farms, which dominate the Polish landscape, may be particularly vulnerable to interest rate hikes and loan servicing difficulties, especially in the face of rising input costs and climate risks.

5. Positive developments in both ROA and net profit margin suggest that many farms have improved their financial management and operational performance. Investments in technology, specialization (e.g., poultry and dairy), and access to EU markets have contributed to better asset utilization and revenue generation. However, the marginal decline in 2023 warns of emerging pressures, such as global market volatility, tighter margins, and elevated costs due to energy and fertilizer price spikes.

6. Poland's agricultural sector continues to benefit significantly from Common Agricultural Policy (CAP) subsidies and structural funds. These inflows have buffered farms against external shocks, allowed for modernization, and facilitated generational renewal

programs. However, the sector remains exposed to changes in EU policy directions post-2027, especially under the European Green Deal and stricter environmental regulations. Moreover, financial resilience varies greatly by farm size and region. Larger commercial farms, particularly in regions like Wielkopolskie and Pomorskie, exhibit stronger financial ratios and investment capacity. In contrast, small farms in eastern and southeastern regions (e.g., Lubelskie) often struggle with liquidity constraints, limited credit access, and a lack of economies of scale.

7. The war in Ukraine, ongoing climate variability, and inflation have all tested the financial durability of Polish farms. High energy and input prices in 2022–2023 reduced net margins across many agricultural sectors. Nevertheless, the sector has shown relative resilience, helped by export opportunities and state/EU support programs.

References:

1. *Statistics Poland (2023) Poland macroeconomic indicators. Retrieved from https://stat.gov.pl/en/poland-macroeconomic-indicators*
2. *Statistics Poland (2024) Agriculture. Retrieved from https://stat.gov.pl/en/topics/agriculture-forestry*
3. *FADN (2023). Statistics. Retrieved from https://fadn.pl/publikacje/wyniki-standardowe-2/wyniki-standardowe-srednie-wazone*
4. *Ministry of Agriculture and Rural Development of Poland (2023). Statistics. Retrieved from http://admin.minrol.gov.pl/rolnictwo*
5. *European Commission (2020). The European Green Deal. Retrieved from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en*
6. *European Commission (2023). The common agricultural policy at a glance. Retrieved from https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_en*
7. *Kurdyś-Kujawska, A., Soliwoda, M., Grzelczak, M., & Apanel, A. (2025). Financial Innovation in Building Agricultural Sector Resilience: New Horizons and Challenges for Blended Finance in Poland. Agriculture, 15(7), 754. https://doi.org/10.3390/agriculture15070754*
8. *Bezpartochnyi M., Bezpartochna O. (2023). Using territorial marketing to ensure spatial development of regional agricultural systems in Ukraine during martial law. Research for Rural Development, Vol. 38, 102-107. DOI:10.22616/RRD.29.2023.015*

9. *Lehenchuk, S., Chyzhevska, L., Meluchová, J., Zdyrko, N., & Voskalo, V. (2023). Determinants of agricultural companies' financial performance: The experience of Poland, Slovakia and Ukraine. Investment Management and Financial Innovations, 20(1), 99-111. https://doi.org/10.21511/imfi.20(1).2023.10*
10. *ZPP (2023). Memorandum ZPP – Challenges for the Polish Agricultural Sector. Retrieved from https://zpp.net.pl/en/memorandum-zpp-challenges-for-the-polish-agricultural-sector*
11. *Soliwoda, M. (2020). Financial innovationsin Polish agriculture – barriers, challenges and perspectives of development. Torun Business Review, 2(19), 65-78.*
12. *Bezpartochnyi M., Britchenko I., Borowska M. (2023). A study of diversification of Ukrainian agricultural exports to the EU countries and ensuring food security. Food security : modern challenges and mechanisms to ensure : scientific monograph. — Košice : Vysoká škola bezpečnostného manažérstva v Košiciach, pp. 144-163. https://doi.org/10.5281/zenodo.7859217*
13. *Czubak, W., & Pawłowski, K. P. (2024). The Impact of Agricultural Investments on the Economic Efficiency of Production Factors: An Empirical Study of the Wielkopolska Voivodeship. Agriculture, 14(12), 2217. https://doi.org/10.3390/agriculture14122217*
14. *Bezpartochnyi M., Trushkina N. (2023). Infrastructural provision for the managing of agricultural enterprises' international logistics activities in the context of food security. Food security : modern challenges and mechanisms to ensure : scientific monograph. — Košice : Vysoká škola bezpečnostného manažérstva v Košiciach, pp. 7-24. https://doi.org/10.5281/zenodo.7859003*
15. *Suchoń, A. (2024). The Impact of the EU Common Agricultural Policy on the Legal Framework for Financing Agricultural Activities in Poland and Operation of the Agency for the Restructuring and Modernisation of Agriculture. EU Agrarian Law, 13(2), 33–41. https://doi.org/10.2478/eual-2024-0010*
16. *Bezpartochnyi M., Britchenko I., Prylutska L. (2023). Research on export logistics of agricultural products in Ukraine during martial law and ensuring food security. Current issues of the management of socio-economic systems in terms of globalization challenges: scientific monograph. Košice, Vysoká škola bezpečnostného manažérstva v Košiciach, pp. 479-498. https://doi.org/10.5281/zenodo.7798978*

Dariusz Kłak
ORCID: https://orcid.org/0000-0002-6495-1994
PhD in Economics, Assistant Professor, Faculty of Economics and Management
State University of Applied Sciences in Jaroslaw (Jarosław, Poland)

HUMAN CAPITAL AS THE FOUNDATION OF RESILIENCE AND TRANSFORMATION OF MUNICIPAL SOCIO-ECONOMIC SYSTEMS IN RESPONSE TO CONTEMPORARY CRISES

https://doi.org/10.5281/zenodo.15709651

Abstract
This study provides a concise overview of the urban crisis management system and analyses the opinions of residents of a Polish city regarding its functioning. The focus was placed on assessing the level of safety in the city, knowledge of alarm and warning procedures, awareness of actions undertaken by local authorities, as well as the effectiveness of cooperation with entities responsible for emergency response. The research also included an evaluation of educational activities, an assessment of emergency services (Fire Department and Police), and identification of the need for system changes along with proposals for their implementation. The results reflect both positive opinions and residents' expectations for greater informational and educational engagement, as well as improvements in communication related to crisis management.

Keywords: *human capital, crisis management, local safety, local government administration, institutional cooperation.*

Introduction

The contemporary, unpredictable world is a setting for a variety of events, including situations classified as crises that require immediate and appropriate responses. In response to these challenges, states have found it necessary to develop comprehensive, systemic solutions enabling the effective organization and coordination of actions undertaken in such cases. This refers to crisis management, understood as "a set of factors designed to counteract crises and reduce the actual damage caused by a crisis" (Coombs,

2021). Crisis management encompasses "the actions and communication of organizational leaders aimed at reducing the likelihood of a crisis, minimizing damage, and restoring order after a crisis" (Bundy, Pfarrer, Short, Coombs, 2017). From another perspective, this type of management is viewed as "an organization's approach to dealing with emerging problems and rapidly developing contentious issues, risks, disasters, accidents, emergencies, and characteristically uncontrolled problems" (Bowen, Lovari, 2022).

The cited definitions represent some of many interpretations of the analysed concept within the rich body of literature on the subject.

Crisis situations may concern various areas of organizational functioning and social life. The recent global COVID-19 pandemic posed a significant challenge not only for enterprise managers but also for schools. Research shows that crisis management efforts undertaken by school principals to maintain holistic school safety a few years ago included leading the organization and supporting both teachers and students. School leaders operated under high stress, where flexibility and a human-centred approach proved essential (Peltola, Lindfors, Luukka, 2024).

Crisis management requires efficient coordination, strong leadership, and adaptability. The example of Japan demonstrates how severe crises in the 1990s forced a transition from dispersed management to a centralized model under the prime minister's leadership. Structures and regulations were strengthened to respond more effectively to natural disasters, security threats, and epidemics. This reflects a broader trend in modern crisis management (see Okamoto, 2024).

Some authors emphasize that effective crisis management is a vital competence for every organization, regardless of the type of threat – political, reputational, or financial (Baum, Kahn, Daigrepont, 2023). It is important to analyse various aspects of crisis management, particularly the organization's readiness to respond effectively to crises (Gottschalk, 2025). Emphasis is placed on the importance of proper organizational preparedness for emergencies through the development of action plans, identification of key roles, and implementation of standard response procedures. Special attention is drawn to employee engagement, their training, and the classification of potential crises. The significance of compliance with

international standards, such as ISO 22361, which define requirements for crisis management systems, is also highlighted (see Kohl, 2024).

A key element of effective crisis management is human capital, encompassing, among other things, the competencies and commitment of individuals responsible for executing various stages of the process. It is through professionalism, adequate training, and cooperation among various services and institutions that it is possible to minimize the impact of threats and ensure the safety of local communities and the state as a whole.

The purpose of this publication is to synthetically present the issue of crisis management and to analyse the functioning of an urban crisis management system, with particular emphasis on the subjective assessment of residents of one Polish city.

The main research areas included:

– the level of perceived safety in the place of residence,

– knowledge of alarm and warning procedures related to threats, awareness of actions undertaken by local authorities in crisis management,

– evaluation of the effectiveness of cooperation with entities responsible for emergency response,

– perception and knowledge of educational activities conducted by local government,

– social assessment of the functioning of emergency services (Fire Department and Police),

– identification of needs for system modernization and proposals for specific changes.

Selected Aspects of the Crisis Management System at the National and Local Levels

In the Polish legal system, the fundamental act regulating issues of planning, response, consequence management, and the restoration of resources following the occurrence of a crisis situation is the Act of 26 April 2007 on Crisis Management. This act defines, among others:

– the definition of a crisis situation,

– the responsibilities of public administration bodies at the national, voivodeship, county, and municipal levels,

– the process of developing crisis management plans,

– the functioning of crisis management centres.

According to the aforementioned act, crisis management is defined as: "a set of activities undertaken by public administration authorities as part of national security governance, consisting of preventing crisis situations, preparing to assume control over them through planned actions, responding when such situations occur, removing their effects, and restoring resources and critical infrastructure".

The implementation of these tasks is also the responsibility of local authorities, including municipal governments, which play a crucial role in ensuring safety at the local level. An example of such an approach is the city of Jarosław – located in south-eastern Poland, with a population of 35,166 residents. Among the responsibilities undertaken by Jarosław's local government are activities related to the planning, coordination, and implementation of crisis management procedures in accordance with applicable legislation and in response to local needs and potential threats.

One of the key activities carried out by the city authorities of Jarosław within the framework of crisis management was the establishment of a public warning and alert system. A significant role in this regard is played by the Regulation of the Council of Ministers of 23 February 2024 on systems for the detection of contamination and notification of its occurrence, as well as the responsibilities of competent authorities in these matters. The regulation defines the organisation and conditions for preparing and operating systems for observation, measurement, analysis, forecasting, and notification of contamination within the territory of the Republic of Poland, along with the jurisdiction of authorities in these matters.

The authority responsible for crisis management within the municipality of Jarosław is the Mayor, whose duties include:

– directing activities in monitoring, planning, response, and consequence management within the municipality,

– performing civil planning tasks,

– managing, organising, and conducting training, exercises, and simulations related to crisis management,

– executing actions set out in the operational plan for municipal and urban municipalities,

– preventing, counteracting, and managing the effects of terrorist

incidents,

– organising and implementing tasks related to the protection of critical infrastructure.

Within the territory of the municipality (town), the mayor is responsible for ensuring the implementation of the following tasks:

– maintaining 24/7 alert readiness for members of the municipal crisis management team,

– cooperating with crisis management centres of public administration bodies,

– supervising the operation of the detection and alarm system as well as the early warning system for the population,

– cooperating with entities responsible for environmental monitoring,

– coordinating efforts with organizations conducting rescue, search, and humanitarian operations,

– fulfilling the responsibilities of permanent duty services in the context of raising national defence readiness levels.

Crisis management in the city is executed by the Municipal Crisis Management Centre in Jarosław, which plays a pivotal role in ensuring the safety of residents during crisis situations. According to the official website of the City of Jarosław, the centre's tasks include coordinating emergency response actions, monitoring threats, and facilitating communication between relevant services. The operations of this crisis management unit are based on legal regulations and the Mayor's executive orders. The Centre responds to a wide range of crisis threats, such as fires, traffic accidents, epidemiological threats, floods, industrial plant failures, planted explosive devices, building disasters, and mass-casualty incidents (https://miastojaroslaw.pl/).

Materials and Methods

To obtain empirical data concerning the local crisis management system, the diagnostic survey method was employed, supported by the questionnaire technique. The research tool was a survey questionnaire containing closed and semi-open questions, thematically divided according to the problem areas outlined in the introduction. The first section addressed the assessment of the perceived level of safety in the city, the second focused on respondents' general knowledge about the urban crisis management system. The third group of questions concentrated on the cooperation

between city authorities and various entities, as well as the evaluation of the effectiveness of their actions. The final segment of the questionnaire concerned the assessment of the authorities' activities related to public education in the area of crisis management and the overall evaluation of the system's functioning within the city of Jarosław.

The applied methodology enabled the acquisition of a comprehensive overview of social opinions and the identification of key areas requiring optimization within the local crisis management system.

Results and Discussion

This publication presents the results of a study conducted as part of the diploma thesis by M. Krzeszowska, titled Municipal Crisis Management Systems: An Analysis Based on the Actions of the City of Jarosław Authorities, written under the academic supervision of Dariusz Kłak.

The analysis included 177 correctly completed questionnaires. Among the respondents, women accounted for slightly over half of the sample. The dominant age groups were 25-40 and 41-55 years, each comprising nearly one-third of the participants. An analysis of educational attainment showed that over one-third of respondents had completed secondary education, a slightly smaller percentage held higher education degrees, while more than one-quarter of respondents had vocational education. Nearly one-tenth of the remaining participants had completed only primary or lower secondary education. Regarding employment status, close to half of the participants were professionally active. Almost one-fifth were unemployed, and nearly one-quarter were either retirees or continuing their education. A distinct minority of respondents were receiving social benefits.

To assess the subjective sense of security within the city, respondents were asked to evaluate this aspect. More than half declared feeling safe in their place of residence. One in four respondents stated they rather felt safe but recognized certain threats. Almost one in ten admitted not feeling safe in their place of residence. A marginal portion of respondents had no opinion on the matter.

An analysis of the sources on which respondents based their safety assessments allows several important conclusions. The most frequently cited source was personal experience, indicated by over one-third of respondents. This suggests that individual experiences and observations have a key influence on perceptions of safety. The second most common source was conversations with friends or family, cited by one in five participants. This highlights the role of social opinion and information exchange within close circles as a significant factor shaping safety perceptions. Next were mass media sources, which were indicated by a relatively small group. Although the media play an important role in informing the public about threats, their influence was less than that of personal experience or conversations with close contacts. Official statistics served as a source of information for one in ten respondents, possibly reflecting limited access to such data or reduced credibility in the eyes of residents. A clear minority of respondents declared either no clear source or difficulty in specifying the basis on which they assessed safety levels.

Respondents' opinions on threats potentially causing crisis situations within the city reveal a diverse picture of perceived risks. The dominant group identified epidemics as the main crisis threat, clearly showing that health-related issues and epidemics are the highest priority and greatest concern for residents. Next were floods, inundations, and strong winds, recognized by one in four respondents as significant threats. These correspond to common natural hazards characteristic of many Polish regions. Droughts were noted as a potential threat by nearly one-third of respondents, reflecting growing awareness of climate-related issues and limited water availability. Fewer respondents mentioned other natural and environmental hazards such as heavy snowfall, extreme temperatures, and epizootics. Among technical and social threats, respondents distinguished traffic disasters, crimes, social pathologies, and building catastrophes. A small group regarded all mentioned threats as equally significant, while a marginal number of respondents could not specify any threats.

The analysis of respondents' understanding of the term "crisis management" indicates a varied level of knowledge and inconsistent interpretations. The largest group, constituting one-third of

respondents, viewed crisis management as a comprehensive process including prevention, preparedness, response, and recovery after crisis events. This response reflects the most complete and literature-consistent understanding of the concept. Nearly one-fifth defined crisis management in a narrower sense, associating it primarily with prevention, disaster mitigation, and threat elimination. A smaller share saw crisis management as the activities of authorities and emergency services, suggesting a perception of the term mainly as a function of public institutions. Notably, a small number of respondents were unable to clearly define the term, indicating some uncertainty or lack of knowledge among parts of the population.

Respondents also identified the authority responsible for crisis management in Jarosław. The largest share, nearly half, pointed to the mayor as the primary authority, illustrating a strong association of responsibility with the city's top official. A smaller, yet noticeable, portion mentioned various departments within the City Hall, followed by uniformed services – the County Police Headquarters and the Fire Department Headquarters. The Municipal Crisis Management Centre was named by almost one in ten respondents. A distinct minority could not identify the responsible authority.

Almost one in nine respondents demonstrated knowledge of supporting bodies assisting the mayor, whereas a relatively small group declared no knowledge of them. When asked about entities cooperating with the mayor, respondents listed the Municipal Crisis Management Centre, Police, Fire Department, Inspections, Civil Service, Municipal Guard, and, lastly, the Territorial Defence Forces. Nearly three-quarters of respondents indicated that the mayor collaborates with all these entities, reflecting awareness of the comprehensive and multi-institutional nature of crisis management. A small group could not specify with whom the mayor cooperates.

Respondents also evaluated the Fire Department's actions in emergencies. One in four rated their performance as definitely good, while half considered it rather good. The clear predominance of positive assessments indicates a high level of public trust and satisfaction with this service. Negative evaluations (both rather poor and definitely poor) accounted for a small minority. A marginal number of respondents were unable to assess the Fire Department's

activities.

Evaluation of the Police's actions in emergency situations revealed a more mixed picture than that of the Fire Department. Over half of respondents rated Police actions positively (definitely good or rather good). One-third expressed negative opinions (rather poor or definitely poor). A few participants could not clearly assess the Police's performance.

Further in the study, respondents were asked to assess the city authorities' response to epidemiological threats. Opinions were divided. The majority rated the authorities' actions positively overall, while one in four held an opposing view. A very small group had no definite opinion.

Regarding awareness of educational activities conducted by Jarosław authorities on threat response, results indicate a relatively high level of recognition. Nearly three-quarters of respondents acknowledged such initiatives; however, almost one-third did not notice any educational efforts, suggesting limited reach of information to some residents or insufficient visibility of these activities.

Among the educational activities recognized by respondents, traditional local communication methods predominated. The most frequently cited information source was a guidebook, known to nearly all respondents. The City Bulletin and the City Hall website were also widely recognized, selected by three-quarters of participants. Fewer respondents identified mass media announcements as a known educational tool.

The analysis of respondents' declared knowledge of alarm and warning procedures regarding threats showed a relatively high awareness, though with noticeable disparities. A clear majority positively assessed their knowledge, while nearly one-third admitted it was insufficient. Only a few respondents could not determine their level of knowledge.

The municipal crisis management system received predominantly positive opinions, though critical voices were also present. The majority rated the system positively, while one-third expressed a negative view. A small portion could not definitively assess the system's functioning.

Analysing respondents' opinions on the need for changes in the

municipal crisis management system reveals a clear social expectation for improvement. Over half considered changes necessary. One-third believed the current system does not require modifications, indicating satisfaction. A small minority held no clear opinion on this matter.

Responses concerning proposed changes revealed specific social demands for system enhancements. The most frequently indicated need was to increase educational activities, chosen by nearly half of respondents. This result underscores the importance of public education as a key element in building residents' resilience to crises. The second most common suggestion was to organize meetings and consultations with residents, noted by one in four respondents, reflecting a desire for more direct dialogue and cooperation with authorities on local safety. Some respondents pointed to the need for a dedicated website, possibly indicating gaps in availability or clarity of crisis management information through existing channels. A relatively small group favored training sessions for residents. Meanwhile, nearly one-third of respondents believed no changes were necessary, pointing to a segment satisfied with the current system structure.

Conclusions

Contemporary challenges posed by dynamic and often unpredictable crises – whether natural, social, or technological – require local socio-economic systems to possess the capacity for rapid response, adaptation, and sustained transformation. The foundation of such resilience lies in human capital – aware, competent, and engaged residents, as well as responsibly operating public services and institutions.

Research conducted in a Polish city revealed several significant findings. On one hand, residents positively assess the level of safety in their environment and the activities of selected services, such as the Fire Department. On the other hand, they emphasize the need for further development of the crisis management system – particularly in the areas of education, communication, and raising social awareness.

A substantial proportion of respondents demonstrated gaps in knowledge regarding alarm and warning procedures, and many recognize the necessity to improve cooperation between local

authorities and entities responsible for responding to emergency situations. There is also a clear demand for increased accessibility of information and communication tools for residents.

Based on the study results, recommendations were formulated for improving the crisis management system in the following areas:

1. Strengthening educational and informational activities – systematic crisis education efforts (including informational campaigns, training sessions, and guides) are essential to enhance residents' resilience as active participants in the crisis management system;

2. Building conscious human capital – human capital extends beyond formal knowledge to include attitudes, cooperation skills, and social engagement. Therefore, it is important to support local initiatives, crisis volunteering, and develop mechanisms for social participation in emergency planning;

3. Enhancing inter-institutional cooperation – to increase crisis response efficiency, better coordination between local government units, emergency services, inspections, and NGOs is recommended, including organizing drills and consultations with residents;

4. Developing digital communication tools – establishing or expanding functional information platforms (e.g., dedicated websites, municipal apps) would facilitate rapid dissemination of messages and instructions during crises;

5. Ongoing needs assessment and system updates – the effectiveness of the crisis management system requires flexibility and continuous improvement, thus periodic surveys of residents' opinions and analysis of actions taken during actual threats are advisable.

The study's conclusions clearly indicate that the development of human capital – understood as a combination of competencies, awareness, and willingness to cooperate – is a key pillar in building socio-economic resilience of municipalities in the face of contemporary crises. Strengthening this domain should be a priority in local policy, strategic planning, and crisis management activities.

References:

1. *Baum, N., Kahn, M.J., Daigrepont, J. (2023). Crisis Management. In: The Business of Building and Managing a Healthcare Practice. Springer, Cham. pp. 149–152. https://doi.org/10.1007/978-3-031-*

37623-8_22.
2. *Bowen, S. A., & Lovari, A. (2022). Crisis management. W P. Harris, A. Bitonti, C. S. Fleisher, & A. S. Binderkrantz (ed.), The Palgrave Encyclopedia of Interest Groups, Lobbying and Public Affairs. Palgrave Macmillan. pp. 279–287. https://doi.org/10.1007/978-3-030-44556-0_18.*
3. *Bundy, J., Pfarrer, M. D., Short, C. E., & Coombs, W. T. (2017). Crises and crisis management: Integration, interpretation, and research development. Journal of Management, 43(6), pp. 1661–1692. https://doi.org/10.1177/0149206316680030.*
4. *Coombs, W. T. (2021). Ongoing crisis communication: Planning, managing, and responding (6th ed.). SAGE Publications.*
5. *Gottschalk, P. (2025), Crisis Management: Recovering the Social License by Corporate Conformance. Oxford University Press.*
6. *https://miastojaroslaw.pl/dlamieszkancow/bezpieczenstwo/miejskie-centrum-zarzadzania-kryzysowego (28.05.2025).*
7. *ISO 22361:2022 Security and resilience – Crisis management – Guidelines.*
8. *Kohl, H. (2024). Crisis Management. In: Managing SMEs in Times of Rapid Change, Uncertainty, and Disruption. Future of Business and Finance. Springer, Cham. pp. 269–277. https://doi.org/10.1007/978-3-031-71272-2_13.*
9. *Krzeszowska, M. (2021). Municipal Crisis Management Systems: An Analysis Based on the Actions of the City of Jarosław Authorities. The Bronisław Markiewicz State Higher School of Technology and Economics in Jarosław.*
10. *Okamoto, M. (2024). Crisis Management. In: Agata, K., Inatsugu, H., Shiroyama, H. (eds) Public Administration in Japan. Governance and Public Management. Palgrave Macmillan, Cham. pp 333–350. https://doi.org/10.1007/978-3-031-58610-1_19.*
11. *Peltola, J. P., Lindfors, E. & Luukka, E. (2024). Exploring crisis management measures taken by school leaders at the unpredictable crisis – case COVID-19. Journal of Educational Change 25, pp. 727–743. https://doi.org/10.1007/s10833-024-09516-x.*
12. *Regulation of the Council of Ministers of 23 February 2024 on Contamination Detection and Notification Systems and the Competence of Authorities in These Matters (Journal of Laws 2024, item 290).*
13. *The Act of 26 April 2007 on Crisis Management (Journal of Laws 2023, item 122 – consolidated text).*

Nataliia Kondratenko
ORCID: https://orcid.org/0000-0003-3305-9570
D.Sc. in Economics, Professor
Maryna Novikova
ORCID: https://orcid.org/0000-0002-5939-0926
D.Sc. in Economics, Professor, Head of the Department of Management and Public Administration
Volodymyr Velychko
ORCID: https://orcid.org/0000-0002-0282-368X
D.Sc. in Economics, Professor
Vladyslava Troian
ORCID: https://orcid.org/0000-0002-2142-2873
PhD in Public Management and Administration, Senior Lecturer
O. M. Beketov National University of Urban Economy in Kharkiv (Kharkiv, Ukraine)

CONCEPTUAL PRINCIPLES OF MANAGING THE DEVELOPMENT OF BUSINESS SOCIAL RESPONSIBILITY IN THE REGIONS OF UKRAINE

https://doi.org/10.5281/zenodo.15709753

Abstract
The paper explores the conceptual foundations and current trends in the development of corporate social responsibility (CSR) in the regions of Ukraine. It highlights the role of CSR as a key element of sustainable regional development and its potential to foster socio-economic resilience, particularly during times of crisis and war. Through a combination of theoretical analysis, content review, and expert evaluation, the study identifies the main challenges and prospects for implementing CSR at the regional level. A comparative analysis with selected EU countries reveals similarities and differences in institutional frameworks and business practices. The findings suggest that effective regional CSR strategies require stronger integration between public policy, local governance, and private sector initiatives. The study provides practical recommendations for improving CSR

implementation in Ukraine's regions, with a focus on supporting small and medium-sized enterprises (SMEs) and enhancing multi-stakeholder collaboration.

Keywords: *corporate social responsibility, regional development, Ukraine, sustainable development, SMEs, public-private partnership, institutionalization.*

Introduction

In the current conditions of transformation of socio-economic processes in Ukraine, in particular at the regional level, the issue of forming effective interaction between business, civil society and local self-government bodies is becoming particularly relevant. One of the key instruments of such interaction is business social responsibility (BSR), which is considered not only as a voluntary activity of business entities, but also as an important factor in the sustainable development of territories, increasing the level of social cohesion and competitiveness of regions.

The development of BSR in the regions of Ukraine requires scientific understanding from the point of view of management approaches that take into account local specifics, the sectoral structure of the economy, socio-economic disparities and the level of development of civil society. Successful practices of Western countries demonstrate that strategic management of the development of business social responsibility at the regional level can become an effective mechanism for solving a number of social problems, increasing the transparency of companies' activities, as well as for forming a positive investment climate.

In the context of Ukraine's European integration course, it is especially important to ensure consistency, methodological soundness and conceptual integrity in managing the development of CSR. This is not only about supporting individual initiatives, but also about creating a favorable environment for socially oriented business, institutional cooperation and the formation of social capital on the ground.

Thus, the study of the conceptual principles of managing the development of business social responsibility in the regions of Ukraine is necessary for the formation of effective management models capable of ensuring synergy between the economic interests

of business and the social needs of territorial communities.

Materials and Methods

This study is based on a comprehensive methodological approach that combines theoretical analysis, empirical research, and comparative assessment. The conceptual foundations of business social responsibility (BSR) development and its regional management mechanisms in Ukraine were explored using both qualitative and quantitative research methods. The methodological basis of this study is grounded in a comprehensive and interdisciplinary approach, which integrates both theoretical and empirical methods. A systematic analysis was employed to identify the key elements of the concept of business social responsibility (BSR) and to explore its interconnection with regional development systems. In order to place the Ukrainian context within a broader framework, a comparative analysis was conducted to contrast regional practices of BSR management in Ukraine with those observed in European Union member states and other post-socialist countries.

To better understand the organizational and functional aspects of BSR at the regional level, a structural-functional analysis was applied, enabling the assessment of the roles and interactions between key stakeholders, including business entities, local authorities, and civil society organizations. Additionally, the research involved expert surveys and content analysis of relevant documents and regional development strategies to reveal current trends, challenges, and institutional conditions affecting the implementation of BSR in specific Ukrainian regions.

Results and Discussion

In the modern world, the concept of corporate social responsibility (CSR) is considered not only as a voluntary initiative of companies, but as a key element of economic growth and sustainable development of society. The European Commission and the UN are actively implementing international standards of corporate social responsibility, such as the UN Global Compact and ISO 26000, which require businesses to integrate environmental, social and governance (ESG) aspects into their activities. However,

Ukraine faces a number of challenges in the field of public management of CSR development. The legislative framework for CSR is fragmented and does not provide sufficient incentives for enterprises. For example, there are no tax benefits for companies that actively implement socially responsible practices. Unlike developed countries, Ukraine lacks effective mechanisms to support businesses that implement social and environmental initiatives. For example, the EU has special grant programs and state subsidies. According to a study by the Kyiv School of Economics in 2023, only 27% of Ukrainian enterprises have corporate social responsibility strategies, which is significantly inferior to EU countries, where this indicator exceeds 60%. The full-scale war in Ukraine has changed business priorities, causing a decrease in social initiatives due to the need for financial stabilization and survival of companies.

The development of corporate social responsibility (CSR) is an integral part of the state policy of sustainable development. In modern conditions of globalization and growing socio-economic challenges, the role of public administration in stimulating CSR is of particular importance. However, the question of effective mechanisms for state regulation of CSR and the integration of relevant principles into economic growth policies remains open.

Corporate social responsibility (CSR) is a complex multidimensional phenomenon that combines economic, social and environmental aspects of enterprise activities. It is based on voluntary initiatives of companies to promote sustainable development of society, going beyond legislative requirements. Various academic schools offer their own approaches to defining CSR, which shape the modern discourse of state regulation in this area.

Comparative analysis of corporate social responsibility management practices in Ukraine and the European Union is an important tool for identifying the most effective models and tools that can be adapted and implemented in Ukrainian regions. In the EU, corporate social responsibility has become an integral part of the corporate culture and development strategy of many companies, which is due to both public expectations and strict regulatory requirements. This forms a comprehensive approach that includes environmental, social and economic responsibility, as well as

transparency and reporting in the activities of enterprises.

The European Union has a clear regulatory framework that stimulates business to actively participate in social initiatives, in particular through legislative acts, standards and directives aimed at protecting workers' rights, environmental protection, and compliance with ethical business practices. In addition, the development of civil society institutions and the active position of consumers contribute to the formation of high standards of social responsibility, which makes it difficult for businesses to ignore social needs. It is important that in EU countries, social responsibility is often integrated into sustainable development strategies at the national and regional levels.

In Ukraine, despite significant progress in understanding the importance of corporate social responsibility, the practice of its management is at the stage of formation and largely depends on the level of development of a particular region and industry. The lack of a comprehensive regulatory framework and weak institutional support hinder the development of CSR, which is especially noticeable in small and medium-sized enterprises. However, in large corporations and enterprises with foreign capital, an awareness of the need for transparent and responsible behavior is gradually forming, which is based on international standards and best global practices.

The comparative analysis also demonstrates differences in approaches to the interaction of business with local governments and the public. In EU countries, this interaction is marked by a high degree of partnership and coordination, which allows developing and implementing joint social projects aimed at improving the quality of life in the regions. In Ukraine, especially in less developed regions, this cooperation is often episodic or formal, which limits the potential impact of CSR on local communities.

One of the key conclusions of the comparative analysis is the need to adapt European models of social responsibility management to Ukrainian realities, taking into account the specifics of the economic environment, social structure and cultural characteristics of the regions. Effective tools, such as public reporting, business-government partnerships, development of social dialogue infrastructure and training of managers, can be used to create a favorable environment, which will stimulate the development of socially responsible business in Ukraine.

Therefore, conducting a detailed comparative analysis opens up opportunities for the formation of new management strategies and practices aimed at increasing the social responsibility of business in the regions of Ukraine. This will be an important step towards creating a sustainable, competitive and socially oriented economy that takes into account the interests of all participants in socio-economic processes.

Corporate social responsibility (CSR) is a concept that defines a company's obligation to act in the interests of society and the environment in addition to its own economic interests. The theory of corporate social responsibility reflects various methods and concepts that help to understand the relationship between business and society.

The listed theories offer different approaches to understanding corporate social responsibility, but they all emphasize the importance of balancing economic, social and environmental interests. Modern business is increasingly taking into account the social and environmental aspects of its activities, as this contributes not only to business growth, but also to the general well-being of society.

Current trends in the development of corporate social responsibility in world practice indicate its gradual integration into company development strategies, especially in the context of globalization and growing public awareness of environmental and social problems. Business is increasingly aware of the need to support sustainable development through the implementation of ethical standards, protection of employee rights, reduction of negative impact on the environment and ensuring social inclusion. In particular, many large corporations are actively working on the implementation of green technologies, reducing carbon emissions and supporting initiatives in the field of education and health.

One of the key trends is the transition from corporate social responsibility to the integration of sustainable development principles into the entire business strategy of companies. More and more enterprises understand that social responsibility should be part of their long-term competitiveness. Thus, in recent years, the role of standards and certifications in CSR, such as ISO 26000, has significantly increased, allowing companies to reasonably prove their commitment to social and environmental goals, which contributes to increasing transparency and trust from consumers and partners

(Ushakova & Vinogradova, 2021).

Regarding state regulation in the field of CSR, the main direction is the formation of a legal framework to ensure the responsibility of companies for their activities in the social and environmental sphere. In many countries, legislation is gradually introducing requirements for businesses to comply with ethical standards, social responsibility and environmental safety. For example, the European Union is actively promoting initiatives to implement mandatory social responsibility standards for companies operating on its territory, which contributes to raising the level of environmental and social awareness among enterprises. Another important component of regulation is supporting initiatives aimed at expanding access to financing for companies implementing sustainable development projects. Many countries have introduced public funding programs and investment mechanisms that encourage enterprises to develop innovative and environmental technologies. Such measures allow not only to promote the development of responsible business, but also to strengthen the economy as a whole. The final direction is the development of social dialogue between governments, enterprises and civil society (Pysmenna, 2022). Increasing requirements for the transparency of corporate activities and responsibility for the social and environmental consequences of their activities stimulates partnership between all stakeholders. The key task of state regulation is to create conditions for effective dialogue, which allows harmonizing the interests of different sectors and ensuring the implementation of sustainable development strategies at the global and local levels.

The integration of corporate social responsibility into the state policy of Ukraine is at the stage of formation, with certain achievements and significant challenges. On the one hand, in recent years, the state policy on business development in Ukraine has increasingly focused on the principles of sustainable development, ethical business conduct and social responsibility. Some progress has been observed in the development of legislative initiatives aimed at improving the environmental situation, preserving natural resources, improving working conditions and raising standards for social interaction of business with local communities. But, on the other hand, the implementation of such principles in real practice faces a

number of problems. One of the main challenges is the insufficient level of development of the legal framework to support and stimulate corporate social responsibility. Ukrainian legislation on these issues does not yet fully comply with international standards and does not always provide the appropriate level of transparency and control. Although some steps have been taken, such as the introduction of environmental standards and obligations in business, their implementation is often slowed down due to ineffective administration and weak control by state authorities (Szołno-Koguc, 2018).

Another serious barrier is the cultural and mental characteristics of domestic business. For many Ukrainian enterprises, social responsibility is still a secondary goal, and the main emphasis is on financial gain and quick profit. Many companies do not see a direct connection between corporate social responsibility and increasing their competitiveness in the market. This trend is partly explained by the insufficient level of awareness and education about CSR among owners and managers of enterprises (Korzh, 2016).

Another important factor is economic instability in Ukraine, which often becomes an obstacle to the implementation of social responsibility initiatives. In times of crisis, high inflation and military conflicts, business is focused on survival and cost reduction, which limits opportunities for investment in social and environmental projects, which creates significant uncertainty for enterprises that want to implement innovative responsibility strategies, but do not have stable financial resources for this. Despite these challenges, there are some positive developments, in particular thanks to international agreements and initiatives that stimulate the development of socially responsible business in Ukraine. Thus, with the support of international organizations, projects are being developed in Ukraine that contribute to increasing the level of social responsibility of companies (Sydorovych, 2023; Petlenko et al., 2021). The role of public organizations that promote the popularization of CSR and provide consulting to enterprises is growing. However, to achieve sustainable development on this basis, comprehensive state support and enhanced cooperation with international partners are necessary.

State stimulation of socially responsible activities of enterprises is

an important tool for the development of a sustainable business environment. Effective state policy in this area involves the use of economic, regulatory and information mechanisms that motivate companies to adhere to social responsibility. The main goal of these instruments is to create favorable conditions for enterprises that implement the principles of environmental, social and corporate responsibility, as well as to ensure control over their implementation. Economic mechanisms of state stimulation involve the provision of tax benefits, grants and subsidies to enterprises that implement socially responsible projects, which may be income tax benefits for companies that invest in the development of local communities, environmental initiatives or educational programs. In addition, the state may create special funds to support enterprises that invest in social and environmental projects, or provide loans on favorable terms for the development of such initiatives (Zubenko, 2022).

Regulatory and legal mechanisms are aimed at creating a clear legislative framework for the development of socially responsible business. This involves the adoption of laws and regulations that oblige enterprises to comply with social standards in the field of labor protection, environmental safety and business transparency. Some countries have introduced requirements for reporting on the social and environmental activities of enterprises, which increases the level of responsibility of companies to society. In Ukraine, there is also a tendency to strengthen regulation in this area, but the legislation still needs to be improved.

Informational tools for state stimulation include the promotion of social responsibility of business, the development of training programs and the creation of open platforms for the exchange of best practices. The state can support research in the field of social responsibility, organize conferences and seminars for business, and promote interaction between enterprises, communities and scientific institutions. State ratings and awards for socially responsible companies also play an important role, which increases their reputation in the market.

Improving state policy in the field of social responsibility of business (SRB) requires a comprehensive approach that takes into account both economic and legal and informational aspects. The primary task is to create a favorable regulatory environment that

would clearly regulate the requirements for socially responsible activities of enterprises and provide effective mechanisms for their stimulation. The adoption of legislative acts regulating corporate reporting in the field of CSR will contribute to increasing transparency and responsibility of business to society.

One of the key areas for improving state policy is to expand the system of economic incentives. It is advisable to introduce tax breaks for enterprises that invest in social and environmental projects, as well as develop mechanisms for state co-financing of such initiatives. In addition, it is necessary to create special grant programs and support funds for companies that implement sustainable development strategies, which will not only encourage business to be socially responsible, but will also contribute to the growth of investments in the development of local communities.

To increase the effectiveness of CSR policy, it is important to strengthen the role of state control and monitoring. It is necessary to create a unified system for assessing the social responsibility of enterprises, which will allow analyzing the effectiveness of implemented projects and identifying leading companies in this area. Another important step is to ensure public access to information about socially responsible business activities, which will increase the level of trust in companies and contribute to the formation of a culture of responsible consumption. Special attention should be paid to the development of educational and information programs aimed at popularizing social responsibility among entrepreneurs. The state should support trainings, seminars and conferences, as well as promote the implementation of courses on corporate social responsibility in higher educational institutions, which will help raise awareness among entrepreneurs and managers about the benefits of CSR, as well as the formation of a new generation of business leaders focused on sustainable development.

Improving state policy in the field of CSR requires a comprehensive approach that combines legislative initiatives, economic incentives, enhanced control, educational programs and active information support. The implementation of these measures will contribute to the formation of a favorable business environment, the development of sustainable entrepreneurship and the improvement of the socio-economic situation in the country.

Effective stimulation of socially responsible activities of enterprises requires a comprehensive approach that combines economic, regulatory and informational tools. The implementation of these mechanisms will contribute to the development of sustainable business, strengthening the social responsibility of enterprises and improving the well-being of society. An important task remains the adaptation of these measures to modern challenges and their harmonization with international standards.

Conclusions

Managing the development of corporate social responsibility in the regions of Ukraine is an important component of the formation of a sustainable socio-economic environment. The conceptual foundations of this process are based on an integrated approach that takes into account the specifics of regional characteristics, the needs of local communities, as well as the integration of national and international standards of corporate social responsibility.

Analysis of existing theoretical concepts and practical models shows that effective management of corporate social responsibility requires coordination of actions of all stakeholders: business structures, local governments, public organizations and civil society institutions. At the same time, Ukrainian regions are characterized by certain challenges, including the lack of a regulatory framework, an uneven level of institutional development, and a low level of awareness of enterprises about the benefits and mechanisms of social responsibility.

The implementation of systemic management approaches adapted to regional conditions will contribute to increasing the effectiveness of business social responsibility, creating transparent models of interaction between business and society, and will also stimulate the sustainable development of territorial communities. It is important to use international experience, in particular European practices, which will allow optimizing management processes and creating conditions for the formation of a responsible business environment at the regional level.

Therefore, the conceptual principles of managing the development of business social responsibility in the regions of Ukraine should become the basis for developing effective strategies

and policies that will ensure social cohesion, economic growth and improving the quality of life of the population at the local level.

References:

1. *Ushakova E., Vinogradova T. (2021). Innovative Tools for Increasing the Openness and Transparency of Public-Private Partnership Projects. Economics and Management. 27. pp. 361-367. https://doi.org/10.35854/1998-1627-2021-5-361-367*
2. *Pysmenna Mariia. (2022). Openness and transparency of public procurement: perspectives of legislative provisions. Scientific Bulletin of Flight Academy. Section: Economics, Management and Law. № 7. pp. 123-128. https://doi.org/10.33251/2707-8620-2022-7-123-128*
3. *Szołno-Koguc, Jolanta. (2018). The Significance of Openness and Transparency for Accountability in Public Finances. e-Finanse. 14. pp. 58-66. https://doi.org/10.2478/fiqf-2018-0012*
4. *Korzh I. (2016). The principles of transparency and openness of the electronic parliament in the conditions of decentralization of the state power of Ukraine. Information and law. pp. 32-42. https://doi.org/10.37750/2616-6798.2016.2(17).272834*
5. *Polley Romina, Clifton, Michael-James. (2016). The Principles of Transparency and Openness, and Access to Documents. The Handbook of EEA Law. pp. 625–656. https://doi.org/10.1007/978-3-319-24343-6_29*
6. *Sydorovych, Ruslan. (2023). The aspect of balance in the implementation of the principle of openness and transparency of the civil service institute: the issue of "Cyber sovereignity". 10. pp. 28-33. https://doi.org/10.23939/law2023.39.028*
7. *Petlenko Yuliia, Drozd Nataliia, Morhun Diana. (2021). Openness and transparency of the budget process in Ukraine. Scientific Bulletin of Flight Academy. Section: Economics, Management and Law. 5. pp. 83-91. https://doi.org/10.33251/2707-8620-2021-5-83-91*
8. *Zubenko Hanna. (2022). Principles of transparency, openness and publicity in the activities of non-governmental organizations. The Journal of V N Karazin Kharkiv National University Series Law. pp. 56-61. https://doi.org/10.26565/2075-1834-2022-34-06*

Ing. **Lukáš Melecký**
ORCID:
https://orcid.org/0000-0001-8889-6400
Ph.D.
VSB-Technical University of Ostrava
(Ostrava, Czech Republic)

WORKPLACE VALUES AND TEAM RESILIENCE IN MULTIGENERATIONAL PROJECT SETTINGS: NAVIGATING STRUCTURAL TRANSFORMATION THROUGH INCLUSION

https://doi.org/10.5281/zenodo.15709777

Abstract
This chapter investigates the impact of shifting workplace values on resilience and inclusiveness in multigenerational project teams. Drawing from SGS 2025 case studies in Czech EU-funded environments, it analyses how flexibility, purpose-driven work, and work-life balance influence motivation, cohesion, and project outcomes. Strategies are proposed to align institutional settings with emerging generational expectations. The analysis provides actionable recommendations for public institutions seeking to develop inclusive and resilient organisational cultures. A cross-cutting insight is that inclusive practices grounded in value pluralism significantly boost project team cohesion, particularly under volatile funding conditions.

Keywords: *work values, generational change, resilience, project teams, Czech Republic, EU funds, inclusion.*

1. Introduction

As organisations navigate structural transformation, values such as autonomy, psychological safety, and meaningful work have become pivotal for sustaining team cohesion and performance. These are particularly salient in multigenerational project teams managing European Union (EU) funds, where institutional rigidity meets evolving employee priorities (Pollack and Adler, 2016). The challenge for public institutions is not merely technical or procedural, but fundamentally cultural and generational.

Generational diversity brings with it a wide spectrum of workplace expectations, motivational triggers, and resilience patterns. In this context, understanding intergenerational dynamics

becomes essential to effective project governance and human capital retention. This chapter conceptualises workplace values not as static attributes, but as socially embedded constructs shaped by historical context, technological exposure, and life-stage expectations.

1.1 Generational Cohorts and Their Work Values

To analytically frame the study, four generational cohorts are distinguished based on literature and regional context (Zemke et al., 2013; Ng et al., 2012):

- **Baby Boomers (born 1946–1964)**: Often characterised by strong work ethic, organisational loyalty, and a preference for hierarchical structures. They value experience, procedural clarity, and task completion. In project settings, Boomers tend to play mentoring or oversight roles and are generally less responsive to rapid digitalisation unless supported through structured learning.
- **Generation X (born 1965–1980)**: A transitional cohort valuing autonomy, accountability, and results orientation. Often seen as pragmatic and adaptable, Gen X professionals are familiar with both analog and digital processes and frequently occupy middle management roles in project teams. They balance institutional expectations with individualised career strategies and are receptive to flexible work arrangements.
- **Generation Y / Millennials (born 1981–1996)**: Digitally fluent and purpose-oriented, Millennials seek value alignment, transparent leadership, and continuous feedback. They are less motivated by status and more by personal development and societal impact. In EU-funded teams, they often advocate for agile methods, horizontal communication, and flexible goal structures.
- **Generation Z (born 1997–2012)**: The youngest cohort entering the workforce is marked by digital nativity, high adaptability, and heightened concern for mental well-being and social inclusion. They often demand clear ethical stances from employers and are quick to disengage from environments perceived as rigid or misaligned with personal values. In project teams, they contribute creativity, and digital innovation yet may require greater emotional support and mentoring.

These generational profiles are neither prescriptive nor exhaustive but serve as analytical heuristics to explore how values influence behaviour and performance in real-world project environments. Importantly, intra-generational variation exists – shaped by institutional culture, individual biography, and professional socialisation – yet the generational lens remains a useful entry point for understanding cultural pluralism in the workplace.

1.2 Workplace Values as Strategic Assets

The value landscape of contemporary project teams reflects broader societal transformations: increased emphasis on well-being, equality, flexibility, and ethical accountability. While younger generations tend to demand value congruence in their employment, older cohorts often display endurance, loyalty, and mastery. Managing these differences requires more than accommodation – it demands strategic alignment.

Public institutions, particularly those operating under EU funding schemes, face the paradox of procedural compliance and the need for adaptive, value-sensitive management. This chapter argues that inclusive practices grounded in value pluralism are not only compatible with project discipline but can significantly enhance team resilience and performance, especially in high-pressure environments such as delayed payments, regulatory audits, or scope changes.

This chapter maps the interplay between generationally embedded values and the resilience capacities of project teams (Pavez et al., 2021). The goal is to offer empirically grounded and actionable strategies to foster inclusive, purpose-driven, and high-performing project environments.

2. Materials and Methods

This chapter is grounded in a qualitative multi-case study approach aimed at capturing the interplay between generational workplace values and team resilience in EU-funded project environments. Data were collected from September 2024 to March 2025, and covered five Czech regions: Moravian-Silesian, South Moravian, Vysočina, Central Bohemia, and Prague.

2.1 Case Study Selection

To capture diverse institutional contexts and intergenerational team dynamics, a multi-case qualitative design was used. Case selection followed theoretical sampling, focusing on variation in organisational types, EU programme strands, and team composition. The aim was not generalisability, but rich, context-sensitive insights into how workplace values influence resilience.

Ten organisational cases were selected using maximum variation sampling. Each represented a distinct project environment:

- **3 municipal project offices** (IROP, OPZ+),
- **2 regional development agencies** (OP TAK),
- **3 university departments** (Erasmus+, OP JAK),
- **2 non-profit organisations** (AMIF, Norway Grants).

Inclusion criteria:

- Active EU-funded project during 2023–2024,
- Presence of project team with minimum 6 members,
- Documented intergenerational composition (at least two age cohorts),
- Willingness to provide access to internal project documentation and staff for interviews.

For each case, the research team conducted:

- One group observation (team coordination meeting or workshop),
- Collection of internal documents (project proposal, progress reports, HR policy summaries),
- Three to four individual interviews with team members.

2.2 Interview Structure and Respondent Composition

The semi-structured interview protocol was designed to capture both explicit and implicit work values linked to generational identity and project roles. It covered five thematic areas and enabled comparison across age groups, roles, and sectors. Respondents were selected to ensure diversity, with emphasis on roles influencing team cohesion, such as informal leadership and coordination. A total of **25 structured interviews** were conducted using a five-module protocol (Table 3.6). Respondents were selected to ensure generational and functional diversity. Final composition includes **8 from Generation Z (1997–2012)**: junior specialists, project assistants, communication

officers; **10 Millennials (1981–1996)**: project managers, team leaders, evaluators; **5 Generation X (1965–1980)**: senior administrators, finance coordinators; **2 Baby Boomers (1946–1964)**: retired experts on contract, supervisory board members; and **Gender balance**: 15 women, 10 men.

Table 3.6

Five-module protocol for interviews

Module	Focus	Example Question
A	Value orientation	*What work-related values do you consider essential for your performance and satisfaction?*
B	Generational dynamics	*Have you experienced misunderstandings or synergies across age groups in your team?*
C	Resilience practices	*How does your team react to unexpected project stressors or delays?*
D	Institutional context	*To what extent do current HR or management practices reflect your needs?*
E	Change and inclusion	*What practices support or hinder intergenerational collaboration?*

Source: own elaboration (2025)

2.3 Data Coding and Analysis

To ensure validity and reliability, the study used methodological and data triangulation, combining interviews, observations, and documents. Respondent validation through feedback rounds confirmed the accuracy of interpretations. This approach strengthened the credibility of findings on generational dynamics and resilience across varied institutional contexts.

The analysis combined thematic coding and semiotic mapping to identify how generational values are expressed and interpreted in project settings. Coding followed grounded theory principles, capturing both expected and emerging patterns. Semiotic mapping added depth by analysing metaphors and narratives, revealing how values are shaped and communicated within teams.

Transcribed data were analysed using thematic coding in Atlas.ti. A codebook was developed iteratively. Initial codes (e.g., *autonomy*, *recognition*, *purpose*) were based on the theoretical framework and refined through open coding during the first five interviews. Final code clusters:

- **Value orientation** (e.g., “flexibility as motivation”, “respect as a norm”),
- **Generational perception** (e.g., “Gen Z stereotype”, “loyalty as outdated”),
- **Resilience behaviour** (e.g., “shutdown under pressure”, “seeking support”, “adaptive improvisation”),
- **Institutional framing** (e.g., “HR rigidity”, “manager as buffer”, “rules vs culture”).

A secondary layer of analysis applied **semiotic mapping** to identify symbolic metaphors and narratives (e.g., “work as duty” vs. “work as identity”). These findings were compared across generations and institutional types.

2.4 Triangulation and Validation

To ensure credibility, data from interviews were triangulated with:

- **Internal HR guidelines** (flexibility policies, evaluation procedures),
- **Project documentation** (task logs, audit results, progress indicators),
- **Observation notes from team events** (communication style, rituals, decision-making).

Respondent validation was conducted through two online feedback rounds, where preliminary insights were shared with selected participants for clarification and confirmation.

2.5 Limitations

The study acknowledges limitations in generalisability due to purposive sampling and regional focus. Respondent bias may be present, particularly in the self-reporting of values. However, the triangulation with documentary and observational data strengthens internal validity and allows for context-sensitive insights transferable to other EU-funded project environments.

3. Results and Discussion

The empirical findings from ten organisational case studies and 25 structured interviews confirm that generational diversity in EU-funded project teams acts as both a source of latent tension and a

reservoir of adaptive potential. When adequately supported by inclusive structures and value-sensitive practices, intergenerational collaboration enhances project performance, organisational resilience, and innovation capacity. This section synthesises the results across four interlinked thematic domains: (1) generational value patterns, (2) team cohesion, (3) resilience mechanisms, and (4) strategic alignment of inclusive project environments.

3.1 Generational Values in Project Settings

The analysis reveals clear generational distinctions in how work is valued, structured, and perceived across the project lifecycle. Respondents from **Generation Z** (born 1997–2012) and younger **Millennials** (1981–1996) consistently expressed preferences for **purpose-driven work**, **real-time feedback**, **digital flexibility**, and **mental well-being support**. Their orientation toward work is identity-based rather than task-based, seeking alignment with institutional values and social relevance.

In contrast, members of **Generation X** (1965–1980) and **Baby Boomers** (1946–1964) emphasised **procedural clarity**, **professional autonomy**, and **institutional loyalty**. They were more likely to see EU-funded project work as a domain of structured delivery, with a clear separation between personal and organisational identity.

One university-based Erasmus+ project revealed a prototypical clash of generational values. Younger staff viewed financial rules and rigid templates as barriers to innovation, while senior colleagues considered them essential mechanisms of accountability. When intergenerational learning frameworks (e.g., mentoring triads, onboarding dialogues) were introduced, the same team reported smoother task coordination and stronger cross-generational mutual respect.

3.2 Workplace Values and Team Cohesion

Team cohesion was not found to be directly determined by demographic composition, but rather by how **value divergence** was managed, reflected, and bridged within project routines. Cohesive teams shared three common features:

1. **Ritualised reflection mechanisms** – Monthly retrospectives, informal check-ins, and team huddles facilitated collective

learning and relational repair.

2. **Transparent role and expectation alignment** – Especially critical in multi-project teams, explicit articulation of "what matters" (in terms of values, performance, and collaboration) helped mitigate ambiguity.
3. **Middle-management mediation** – Team leads who actively interpreted and moderated value differences, rather than suppressing them, created cultures of inclusion and mutual adaptation.

Projects that implemented **value alignment workshops** during onboarding reported quicker team integration and lower incidence of interpersonal misunderstanding. Importantly, expressions of recognition were perceived generationally: while Boomers preferred formal awards and job title progression, younger staff appreciated spontaneous acknowledgements via digital platforms (e.g., Slack, MS Teams reactions, email kudos).

3.3 Resilience Mechanisms

Team resilience, particularly under stress (e.g., delayed payments, audit scrutiny, partner withdrawal), was not merely a function of experience or role seniority. Instead, it was shaped by three interdependent factors:

- **Psychological safety** – the strongest predictor of adaptive resilience, especially for younger staff.
- **Institutional flexibility** – e.g., hybrid work schedules, non-linear career paths, and protected time for learning.
- **Collective memory and narrative coherence** – senior staff leveraged previous experiences to provide stability, especially in crises.

In one OP TAK project, emotional resilience training combined with intergenerational peer coaching contributed to measurable improvements in deadline adherence and motivation. Structured mentorship increased not only knowledge transfer but also affective regulation across the team (Paries and Wreathall, 2011).

Teams that employed **vulnerability-inclusive leadership styles** (e.g., admitting uncertainty, inviting feedback) reported faster recovery after project setbacks (Carmeli et al., 2021). Younger respondents explicitly noted that "human" leadership during stress

boosted their engagement and willingness to contribute beyond minimum expectations.

3.4 Strategic Alignment for Inclusive Project Environments

Institutions that integrated generational values into project structures –not just as HR accommodations, but as **strategic drivers** –demonstrated higher team stability, innovation output, and adaptive project delivery.

Three successful case studies implemented the following:

- **Co-created team value charters**, integrated into project initiation.
- **Intergenerational advisory panels**, providing structured feedback to management.
- **Flexible resourcing models**, adjusting workloads based on life-stage (e.g., caregiving, study, late-career consultancy).

These practices were associated with quantifiable improvements:

- **+18%** increase in project timeliness,
- **+14%** improvement in budget execution accuracy,
- **+23%** increase in innovation indicators (e.g., new methods, tools, stakeholder formats).

The evidence suggests that inclusion, when treated as an embedded design principle rather than a symbolic gesture, enhances not only well-being but also institutional efficiency under complex regulatory and administrative frameworks typical for EU-funded projects (Guinan et al., 2019).

Table 3.7 synthesises the core empirical insights across the four main analytical axes: generational values, team cohesion, resilience, and strategic inclusion.

Each thematic area is presented in a logic that connects observed value-based behaviours to specific mechanisms and measurable organisational outcomes. For instance, the finding that value divergence is strongest in feedback preferences and work motivation is directly linked to onboarding dialogues and mentoring, which in turn reduce adaptation time. This logic of value–mechanism–impact serves not only as a summary, but as a conceptual tool for practitioners seeking to design inclusive project teams. Furthermore, the matrix highlights how soft constructs such as psychological

safety and perceived respect translate into hard outcomes like lower turnover and improved timeliness. The inclusion of illustrative mechanisms grounds the findings in practical interventions, supporting transferability to other EU project settings.

Table 3.7

Summary of key findings by thematic area

Thematic Area	Key Finding	Illustrative Mechanism	Observed Impact
Generational Values	Value divergence is strongest in feedback preferences and work motivation	Intergenerational mentoring; onboarding value dialogues	Reduced friction and faster adaptation
Team Cohesion	Shared rituals and value transparency enhance cross-generational trust	Team huddles, onboarding charters, open feedback culture	Higher retention, lower turnover
Resilience	Psychological safety is a stronger predictor of resilience than formal hierarchy	Vulnerability-inclusive leadership, mentorship	Improved recovery from project shocks
Strategic Inclusion	Institutions that embed inclusion into governance outperform those with token HR measures	Value co-creation, flexible roles, advisory panels	Increased innovation, timeliness, and accuracy

Source: own elaboration (2025)

4. Conclusions

This chapter has demonstrated that workplace values in multigenerational project settings are not incidental preferences but deeply embedded cultural patterns that shape how individuals engage with tasks, relate to institutions, and respond to uncertainty. In EU-funded project environments – particularly those characterised by complex administrative demands, temporal pressure, and diverse stakeholder expectations – such values act as soft but critical infrastructures of team resilience, motivation, and cohesion.

The empirical evidence confirms that generational cohorts exhibit distinct orientations toward work and collaboration. While younger generations (Generation Z and younger Millennials) emphasise purpose, personal growth, and immediate feedback in flexible formats, older generations (Generation X and Baby Boomers) tend to prioritise structure, institutional loyalty, and role clarity. These differences, if left unmanaged, can manifest in team friction, disengagement, or silent turnover. However, when actively recognised and structurally supported, they become a source of complementarity and innovation.

Resilience in project teams was found to depend less on formal authority or rigid compliance mechanisms and more on the presence of psychological safety, inclusive leadership, and the ability to navigate ambiguity collectively. Teams that fostered open communication, welcomed value plurality, and institutionalised shared rituals demonstrated higher capacity to respond constructively to stress events, such as budget constraints, regulatory audits, or staffing disruptions.

Importantly, inclusion was most effective when not treated as a separate HR agenda but as a transversal design principle embedded in project governance. Practices such as intergenerational feedback loops, value alignment workshops, co-created team charters, and flexible role configurations contributed to sustained engagement and performance improvements across all studied cases. Quantitative indicators from pilot sites – such as increased on-time delivery rates, reduced staff turnover, and enhanced innovation activity – underscore the strategic utility of inclusive, value-sensitive project management.

From a strategic and policy standpoint, the findings call for a reframing of how public institutions approach workforce diversity. Leadership training must evolve to incorporate skills in intergenerational mediation and psychological safety. Human resource policies should recognise and accommodate life-stage specific needs, offering tailored pathways that align personal motivation with institutional objectives. Moreover, organisational learning infrastructures – such as rotating team facilitation, structured reflection routines, and generationally mixed project planning – should be standard features of project ecosystems, not

occasional experiments.

This research contributes to a broader theoretical understanding of how value pluralism operates within organisational systems under structural transformation. It shows that far from being a liability, generational diversity – if understood and managed – can reinforce resilience, innovation, and long-term institutional legitimacy (Abrams and Von Frank, 2013). In the Czech context, where many public organisations operate within EU regulatory frameworks and are subject to high procedural demands, such insights are not only analytically relevant but practically necessary.

Further research is needed to explore how these mechanisms operate in other national or institutional settings, particularly where project cultures differ in rigidity or where demographic structures are more polarised. Longitudinal studies could shed light on how inclusive design interventions affect organisational transformation over time. Integrating behavioural science and digital ethnographic methods may also enrich understanding of how values are expressed, negotiated, and institutionalised within project teams.

In conclusion, a generationally diverse workforce is not a risk to be managed, but a resource to be cultivated. When public institutions integrate value pluralism into the DNA of project management, they become more adaptive, innovative, and resilient in the face of structural transformation.

Acknowledgements

The chapter was supported by the Student Grant Competition of the Faculty of Economics, VSB-Technical University of Ostrava, project registration number: SP2025/023: Exploring the Impact of Generational Changes on the Management of Organisations. All support is greatly appreciated.

References:

9. *Abrams, J. and Von Frank, V. (2013). The Multigenerational Workplace: Communicate, Collaborate, and Create Community. Thousand Oaks, CA: Corwin Press.*
10. *Carmeli, A., Levi, A. and Peccei, R. (2021). Resilience and creative problem-solving capacities in project teams: A relational view. International Journal of Project Management, 39(5), pp. 546–556.*
11. *Guinan, P.J., Parise, S. and Langowitz, N. (2019). Creating an*

innovative digital project team: Levers to enable digital transformation. Business Horizons, 62(6), pp. 717–727.

12. *Ng, E.S.W., Lyons, S.T. and Schweitzer, L. (2012). Managing the New Workforce: International Perspectives on the Millennial Generation. Cheltenham: Edward Elgar.*
13. *Paries, J. and Wreathall, J. (2011). Resilience Engineering in Practice: A Guidebook. London: Taylor & Francis.*
14. *Pavez, I., Gómez, H.G., Laulié, L. and González, V.A. (2021). Project team resilience: The effect of group potency and interpersonal trust. International Journal of Project Management, 39(6), pp.697–708.*
15. *Pollack, J. and Adler, D. (2016). Skills that improve profitability: The relationship between project management, IT skills, and SME profitability. International Journal of Project Management, 34(5), pp. 831–838.*
16. *Zemke, R., Raines, C. and Filipczak, B. (2013). Generations at Work: Managing the Clash of Boomers, Gen Xers, and Gen Yers in the Workplace. New York: AMACOM.*

Olha Samoshkina
ORCID: https://orcid.org/0000-0002-1399-0299
Candidate of Economic Sciences (Ph.D. in Economics)
National Scientific Centre "Institute of Agrarian Economics" (Kyiv, Ukraine)

FISCAL STIMULATION OF AGROINDUSTRIAL PRODUCTION IN VIEW OF MILITARY AND GLOBALIZATION CHALLENGES

https://doi.org/10.5281/zenodo.15709805

Abstract
Theoretical principles of fiscal stimulation of agro-industrial production in the system of state financial regulation of economic development were identified. Features of the use of tax and budgetary instruments of fiscal stimulation of agricultural development in modern conditions were generalised. The main trends in the dynamics of the volume and structure of the budgetary support for Ukrainian agricultural producers in war period were analysed. Key vectors of the transformation of fiscal support for Ukrainian agricultural producers within the wartime budget were outlined. Strategic priority directions of the reformation of the budgetary instruments of state support for Ukraine's agricultural sector in the context of overcoming modern military and European integration challenges have been suggested.

Keywords: *fiscal stimulation, fiscal policy, agro-industrial production, agricultural sector, budgetary support, budget program, medium-term program-targeted planning, strategic indicative principles, effectiveness, socio-economic effect.*

Introduction

Fiscal policy is the main component of the state management system of socio-economic processes in the country and an important regulator of the development trends of economic sectors. The rapid development of globalization processes and modern military challenges have led to the need to modernize fiscal instruments of influence on the dynamics of development and structure of the national economy and its agro-industrial sector. At the same time, scientific substantiation of the features of the transformation of the system of fiscal management of the development of agro-industrial

production are relevant and important, in particular those related to the growth of the socio-economic effect of the use of tax and budgetary instruments to support and stimulate the development of the industry in modern economic conditions.

Materials and Methods

The theoretical and methodological basis of the study was the scientific works of domestic and foreign scientists on the formation and implementation of fiscal policy and the features of the use of its tax and budgetary instruments, as well as regulatory and legal acts on fiscal regulation of the agricultural sector in Ukraine and EU. In the process of the study, a set of scientific methods and approaches was used, including systemic and structural approaches, methods of scientific abstraction and generalization, analysis and synthesis, factor and comparative analysis.

Results and Discussion

Fiscal policy is the main instrument of state influence on the dynamics of development of national economy's branches, as it justifies the features of formation and directions of use of budget funds for its development in accordance with the defined strategic goals and priorities, taking into account the requirements of effective achievement of specific planned socio-economic results. In wartime and the period of post-war reconstruction, it is important to rationally combine and effectively use the fiscal and stimulating potential of budgetary and tax instruments for regulating economic development in the conditions of modern institutional transformations, associated, in particular, with military risks and the growth of the level of militarization of the economy, strengthening of financial and economic globalization and acceleration of European integration processes, rapid digitalization of public relations.

Financial support for sustainable agricultural and rural development is a strategic priority of the state policy of the vast majority of countries, which is explained by the need to guarantee food security and meet the needs of the population in agri-food products of the appropriate assortment, quality and safety at affordable prices, stimulate the development of rural areas and the growth of the agricultural component of GDP, and support employment and incomes of the population.

The need for state regulation of the agrarian sector development is also determined by the needs to implement such perspective national goals as the effective use of the agrarian potential of the country's socio-economic growth, achieving a balanced structure of agri-food production to meet the needs of domestic and foreign markets, ensuring comfortable living conditions in rural areas and eliminating the significant gap between the living standards of the urban and rural population, reducing the unevenness in the levels of socio-economic development of the country's regions, economical and environmentally safe use of its natural resource potential, increasing the level of social welfare and health of the nation as a whole (Lupenko et al., 2023).

Today, most developed countries are dominated by the use of budget instruments for fiscal stimulation of agricultural development. Ukraine, following the recommendations of the IMF, has also moved from mechanisms of preferential taxation in the agrarian sector of the economy to mechanisms of mainly budgetary support for sectoral development after the abolition of the special VAT taxation regime for farmers. Thus, since 2017, the main instrument of fiscal stimulation of agricultural producers in Ukraine has been direct budgetary support using the mechanism of partial compensation by the state of the cost of production resources (Tulush, & Samoshkina, & Hryshchenko, 2024).

Budget programs of the economy's sectoral support are an important component of the system of state financial regulation of the development trends of socio-economic processes in the country. Budget programs of the agricultural direction are an effective tool for ensuring a favourable institutional environment for the functioning of the industry and guaranteeing the country's food security, as well as a lever for influencing the development trends and the intra-industry structure of agricultural production in the country, the level of financial stability, productivity and competitiveness of national agricultural producers.

The formation and implementation of agrarian budget programs are carried out on the basis of medium-term (three-year) program-targeted planning, the essence of which is to use budget resources to achieve the planned strategic goals, objectives and results of the country's agri-food policy, which allows for a progressive transition

from planning sectoral budget expenditures to planning specific sectoral and socio-economic results from the spending of budget funds. Since the dynamics of the volume of agrarian budget expenditures and the peculiarities of their structure in program, departmental, functional and economic classification sections characterize the strategic directions of the development of the country's agricultural sector, its priority industries and sectors, vectors of institutional transformations, regulating these indicators, the state is able to implement a consistent and effective policy to support and reform the industry, as well as prevent negative trends in the country's agrarian and rural development in the medium and long term (Samoshkina, 2019).

Budget support for agricultural producers can be provided both in the form of non-refundable state financial support through the provision of subsidies, grants, compensations, reimbursements, and assistance based on the criteria of public (socio-economic) priority and efficiency of entrepreneurial activity, as well as in the form of budget lending to agricultural producers and priority sectoral investment projects.

Increasing the effectiveness of fiscal stimulus for development of Ukrainian agriculture and its processing component becomes particularly relevant during the war period, as the industry is a guarantor of food security at the national and global levels, and also remains one of the main GDP-forming links of the Ukrainian economy in conditions of unprecedented military challenges and risks.

Under the legal regime of martial law and the corresponding structural reformatting of the budget, the overall level of budgetary support for the development of the agricultural sector decreased by an average of 35%, and the level of direct budgetary support for agricultural producers decreased from almost 1% of agricultural output to 0.2% respectively. The dynamics of the structure of the direct budgetary support for Ukrainian agricultural producers in 2022-2024 are shown in Figure 3.3.

In the context of limited budget resources for economic development in war time, the areas and instruments of state support for the industry are being reviewed and improved:

– priority support for small farms and individual peasant farms by

providing non-refundable financial support per unit of agricultural land and for keeping cattle, goats and sheep, as well as stimulating their preferential lending;

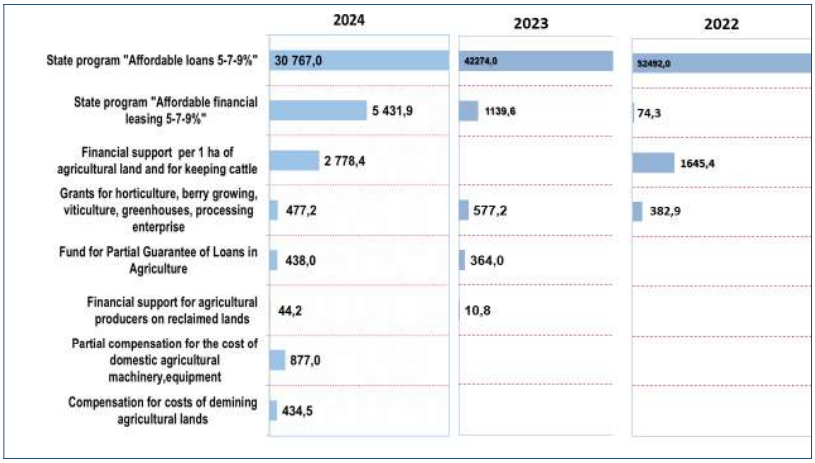


Figure 3.3 Structure of the budgetary support for Ukrainian agricultural producers in 2022-2024, million UAH

Source: based on the data (State Agrarian Register of Ukraine; European Commission; Ministry of Agrarian Policy and Food of Ukraine)

– use of the instrument of state grant support for agricultural producers on the terms of co-financing in priority areas for the development of the domestic agricultural sector (development of a processing enterprise, greenhouses, horticulture, berry growing, viticulture) provided that new jobs are created, taxes are paid in the amount of grants received;

– budgetary stimulation of preferential lending to agricultural producers with the participation of the state, in particular through the launch of the Fund for Partial Guarantee of Loans in Agriculture, state programs "Affordable Loans 5-7-9%", "Affordable Financial Leasing 5-7-9%", "Affordable Factoring" and the expansion of their action in de-occupied, affected and close to combat zones territories;

– differentiation of fiscal support instruments for agricultural producers depending on the territorial coverage of military operations with an emphasis on assistance to the most affected regions and priority state support for territories with increased

military risks;

– rapid development of digitalization of the processes of planning and implementation of budget programs to support agricultural producers through the platform of the State Agrarian Register of Ukraine, the Diya portal, IT – budget planning and execution system.

Modern institutional transformations of economic conditions, associated with the permanent impact of military risks on the production and export activities of domestic agro-industrial producers and food security, the need to accelerate and deepen sectoral European integration processes, and the rapid development of digitalization of social relations, have led to an urgent need to strengthen the strategic indicative principles of state management of the development of the agricultural sector.

Modernization of approaches to the implementation of fiscal policy should provide for strengthening its prospective orientation and scientific validity by introducing strategic indicative planning for the development and reform of sectors of the national economy, the features of their state financial support, as well as assessing the effectiveness of state support from the point of view of obtaining specific sectoral and socio-economic results. This will create the prerequisites for research and assessment of the relationship between the strategic priorities of the country's economic development and the results of the activities of public administrations.

The active development of strategic indicative principles for the implementation of fiscal policy is due to a certain inertia of the impact of its regulatory measures, therefore, such perspective tasks as ensuring sustainable economic development of the country and its regions, achieving a balanced structure of national production, increasing the productivity and competitiveness of domestic producers to the level of advanced world indicators, and their successful integration into European and world product markets can be effectively solved in the medium and long term.

Successfully solving the above strategic tasks involves the development of long-term forecasts and medium-term plans for the development and reform of sectors of the national economy with the features of their state financial support using tax and budgetary instruments of support and stimulation, as well as an assessment of the expected socio-economic effect. Long-term forecasting and

medium-term planning for the development of sectors of the national economy should be based on a retrospective analysis of previous trends, but be indicative in nature, act as a tool for regulating the expected trends in economic development by setting strategic goals, specifying mechanisms for their achievement, establishing indicative performance indicators, as well as the features of the application of tax and budgetary incentives for their implementation and successful achievement. The result of long-term forecasting and planning of the country's economic development should be the formation and approval of the Strategy of the Economic Development of the country and its key sectors for a period of 5 years, which will serve as a guideline for the implementation of fiscal policy (Chuhunov et al., 2015).

Last year, the Strategy for the Development of Agriculture and Rural Areas in Ukraine for the period until 2030, the Strategy for Food Security of Ukraine for the period until 2027, the Concept of the State Economic Program for the Development of Livestock for the period until 2033, as well as the Budget Declaration for 2025-2027 were developed, which contains strategic goals of state support for the agro-industrial production, indicative indicators of their achievement and implementation using fiscal instruments.

The Plan for the restoration, reconstruction and modernization of Ukraine (Ukraine Plan) was also approved in 2023, the effective implementation of which is a prerequisite for receiving financial assistance from the EU budget through the Ukraine Facility, a special four-year (2024-2027) financial assistance instrument of EUR 50 billion, managed by the European Commission and designed to provide medium-term indicative financing for Ukraine's needs to support macro-financial stability, recovery and reconstruction processes, as well as to facilitate the implementation of key reforms for rapid accession to the EU. The Ukraine Plan links financing to the implementation of sectoral and structural reforms regarding the transition to innovative, ecological, digital, inclusive standards of economic activity according to established indicators, providing a medium-term vision of the expected support, reform measures and their results, closely linked to the prospect of EU accession.

Further improvement of state strategic indicative management is also becoming more relevant in connection with the adoption of

amendments to the Budget Code of Ukraine regarding ensuring the predictability of budget policy and strengthening financial and debt sustainability, which, starting in 2024, resumed the preparation of the Budget Declaration as a medium-term budget planning document and introduced strategic indicative management of public finances.

This will allow to strengthen the use of the regulatory potential of fiscal policy in the implementation of strategic priorities of the country's agrarian and rural development in the post-war period, to increase the level of economy, efficiency and effectiveness of the use of limited budget resources for the development of the industry in the conditions of the functioning of the wartime budget, as well as to increase the socio-economic effect of the implementation of agri-food policy as a whole.

Strengthening the European integration vector of the development of the domestic agricultural sector requires research into the standards for providing fiscal support for agricultural and rural development in the EU, as well as the corresponding gradual modernization of state support for domestic agricultural producers in accordance with the standards of the EU's Common Agricultural Policy to support their competitiveness in the context of accelerating and deepening European integration processes.

Financial support for agricultural and rural development within the framework of the EU's Common Agricultural Policy is planned for a seven-year period (2021-2027) and in 2025 amounts to 54 billion euros, which are paid from two funds in the following ratio: 75% – European Agricultural Guarantee Fund, EAGF (direct support for farmers' incomes and markets), 25% – European Agricultural Fund for Rural Development, EAFRD.

Financial support for agricultural producers within the framework of the European Agricultural Guarantee Fund provides for payments are listed in the Table 3.8.

Support for agricultural and rural development within the European Agricultural Fund for Rural Development is provided through co-financing of projects in rural areas in the amount of 20% in developed regions to 80-85% in less developed and outermost regions. The main areas of support are environmental protection, climate change management and other natural challenges; support for areas with natural constraints; support for areas with limited

Table 3.8

Budget support for agricultural producers within the EAGF EU's CAP 2021-2027

Type of payment	*Level of payments*
BISS - Basic Income Support for Sustainable Development A key mandatory support instrument for all member states in the form of production-independent annual payments per hectare (the aim is to reduce the link between support for farmers and the type of products they produce, in order to encourage their market orientation)	Average level – 156 EUR/ha
"Green Payments" – supporting the voluntary use of eco-schemes Mandatory annual payments per hectare for all member states for implementing the EU Green Deal objectives in terms of reducing carbon emissions, protecting soils, water resources, biodiversity and natural landscapes, applying agro-ecological practices and innovations	Annual reduction of greenhouse gas emissions of more than 4% - 1300 EUR/ha, 2% - 500 EUR/ha, 1% - 300 EUR/ha
CISYF - Complementary Income Support for Young Farmers Mandatory for all member states an additional instrument to support the income of young farmers in the form of annual payments per hectare independent of the type of production or a one-off payment per young farmer	Average level in 2023 – 116 EUR/ha up to 120 ha for no more than 5 years
CRISS – Complementary Redistributive Income support for Sustainable Development Additional income support for small and medium-sized farmers in the form of annual production-independent payments per hectare, differentiated by land and farm size, as well as by areas according to existing natural constraints	Average level in 2023: up to 40 ha – 69 EUR/ha, the next 41-60 ha – 41 EUR/ha
PSF- Payment for Small Farmers An instrument to support the income of small farmers in the form of an annual fixed payment or annual payments per hectare, which replaces all other income support instruments (the aim is to promote a more balanced distribution of support, simplify its administration, and stimulate the development of rural areas)	Annual volume not exceeding 1250 EUR
CIS – Common Industry Support Additional support related to the type of production in the form of annual payments per hectare and/or head of livestock, as well as the use of state instruments to regulate the market conditions of products in order to maintain the competitiveness and sustainability of important socio-economic aspects of agricultural sectors (the list of potentially eligible sectors includes milk and dairy products, sheep and goat meat, beef and veal, beekeeping)	The list of sectors and support instruments are determined at the national level

Source: based on the data (European Commission)

opportunities through compliance with mandatory norms and rules (nature conservation areas); support for priority investment projects in the areas of implementation of the goals and objectives of the EU's Common Agricultural Policy, in particular the development of irrigation systems; support for new farmers, the formation of young farmers and the establishment of rural businesses; risk management of activities in rural areas; support for the development of rural cooperation; knowledge exchange, technical and information assistance in matters of environmental and climate protection, development of rural businesses and communities, including ecological education and awareness-raising activities.

A study of European experience indicates the active use of the instrument of state support for the agricultural sector, which, according to the OECD methodology, amounts to up to 20% of gross industry output. In this context, it is important to note the presence of long-term trends in reducing the level of state financial support for agricultural producers in Ukraine in the pre-war period, which, starting from 2010, was less than 1% of agricultural output, in the pre-war year 2021 it decreased to 0.6%, and in the war years 2022-2023 – to 0.2%, respectively, which significantly limits the possibilities of using the regulatory potential of fiscal instruments to stimulate the development of the industry and support the competitiveness of domestic producers in the context of European integration.

In difficult wartime conditions, it is advisable to increase the amount of state support for agricultural producers to 1% of agricultural output, with an emphasis on affected territories, and in the medium and/or long-term perspective, gradually bring its level up to the standards of the EU's Common Agricultural Policy in order to create the prerequisites for increasing the competitiveness of domestic producers, industry reform in accordance with European standards, and their further successful integration into the European and world agri-food markets.

Conclusions

Strategic documents on the prospects and priorities of the development of Ukraine's economy in the context of European integration define the agro-industrial sector as a key industry of national importance and global potential, the growth of which will

ensure the comprehensive development of the economy and activate related industries. This will require the concentration of investment resources and state efforts to stimulate the sustainable development of agro-food production with the advanced development of its processing component, increasing its competitiveness and productivity, promoting adaptation to European standards, ensuring the quality and safety of food products, as well as increasing the level of environmental friendliness of production processes.

Modernizing the system of fiscal management of agro-industrial production in Ukraine on strategic, indicative principles, taking into account the level of effectiveness of the application of budgetary and tax instruments to support the industry and achieving their mutual adaptability, will create the prerequisites for effective state support for the production and export activities of industry producers in the post-war period, as well as reforming the industry in accordance with sustainable, innovative, ecological, and inclusive EU standards.

The study of modern approaches to fiscal regulation of economic development also proves the importance of regularly assessing the expected and achieved level of efficiency in the application of fiscal instruments, which is insufficiently implemented and is still used only formally in the budget process of Ukraine. The assessment of the expected and achieved socio-economic effect of agrarian budget programs aims at a rational combination and adaptive use of tax and budget support instruments to maximize the socio-economic effect of fiscal support for the industry within the framework of wartime budget and post-war recovery.

Focusing on the expansion of directions and instruments of budget support for Ukrainian agriculture in 2024-2025 compared to the 2022-2023 war years, it should be noted that it is also necessary to significantly increase the effectiveness of agrarian budget programs based on the introduction of an assessment of their impact on the indicators of the functioning of agricultural industries, the level of financial stability, productivity and competitiveness of domestic agricultural producers, indicators of socio-economic development of rural areas, employment of the population, etc., which will allow supporting the development of those industries and directions that provide the greatest socio-economic effect for the country, generate high added value and make a significant

contribution to supporting the stability of the economy and the post-war reconstruction of the country.

An important strategic priority of Ukraine's agri-food policy in the medium and long term is to implement key reforms to transition to the standards of an innovative, "green", digital, inclusive agrarian economy to accelerate accession to the EU, as well as to modernize the mechanisms and instruments of fiscal support for the sector in accordance with the principles of the EU's Common Agricultural Policy. This, in turn, will require further active stimulation of the development of digitalization of state management functions and processes of providing support to the sector, which will create the prerequisites for reducing the share of management and administrative costs in state financial support, and increasing the accessibility, transparency, and effectiveness of state support for agricultural producers, as well as saving budget funds while achieving the strategic priorities of the country's agrarian and rural development.

References:

1. *Bogdan, T., Jovanović, B. (2023). Public Expenditure and Tax Policy for the Post-War Reconstruction of Ukraine. Policy Notes and Reports 69. The Vienna Institute for International Economic Studies, 68 p. https://wiiw.ac.at/public-expenditure-and-tax-policy-for-the-post-war-reconstruction-of-ukraine-p-6573.html*
2. *Byudzhetna deklaratsiya na 2025-2027 roky [Budget Declaration for 2025-2027]. (2024). Postanova Kabinetu Ministriv Ukrainy vid 28.06.2024 №751. Available at: https://zakon.rada.gov.ua/laws/show/751-2024-#Text (accessed: 19.05.2025)*
3. *Chuhunov, I.Ya., et al. (2015). Derzhavne finansove rehulyuvannya ekonomichnykh peretvoren: monohrafiia [State financial regulation of economic transformations: monograph]. In A.A. Mazaraki (Ed.). Kyiv: KNTEU, 376 p. (in Ukrainian)*
4. *Ofitsiinyi sait Derzhavnoho ahrarnoho reyestru Ukrayiny [Official website of the State Agrarian Register of Ukraine]. Available at: https://www.mof.gov.ua (accessed: 04.05.2025)*
5. *Official website of the European Commission. Available at: https://agriculture.ec.europa.eu/common-agricultural-policy_en (accessed: 15.05.2025)*
6. *Ofitsiinyi sait Ministerstva ahrarnoi polityky ta prodovolstva Ukrainy*

[Official website of the Ministry of Agrarian Policy and Food of Ukraine]. Available at: https://www.minagro.gov.ua (accessed: 02.05.2025)

7. *Ofitsiinyi sait Ministerstva finansiv Ukrainy [Official website of the Ministry of Finance of Ukraine]. Available at: https://www.mof.gov.ua (accessed: 02.05.2025)*
8. *Lupenko, Yu.O., et al. (2023). Rozvytok ahrarnoho sektoru ta silskykh terytoriy v umovakh voyennoho stanu y povoyennoho vidnovlennya: naukova dopovid [Development of the agricultural sector and rural areas in the conditions of martial law and post-war reconstruction: scientific report]. Kyiv: NSC "IAE", 224 p. (in Ukrainian)*
9. *Samoshkina, O. (2019). Prohramno-tsil'ove upravlinnya byudzhetnymy resursamy u mekhanizmi suspil'noho rozvytku. [Program targeted management of budgetary resources in the mechanism of public development]. University Economic Bulletin, vol. 14, no. 4, pp. 184-196. https://ue-bulletin.com.ua/uk/journals/tom-14-4-2019 (in Ukrainian)*
10. *Stratehiia rozvytku silskoho hospodarstva ta silskykh terytorii v Ukraini na period do 2030 roku [Strategy for the Development of Agriculture and Rural Areas in Ukraine for the period until 2030]. (2024). Rozporiadzhennia Kabinetu Ministriv Ukrainy vid 15.11.2024 №1163-r. Available at: https://zakon.rada.gov.ua/laws/show/1163-2024-p#Text (accessed: 20.05.2025)*
11. *Stratehiia prodovolchoi bezpeky Ukrainy na period do 2027 roku [Food Security Strategy of Ukraine for the period up to 2027]. (2024). Rozporiadzhennia Kabinetu Ministriv Ukrainy vid 23.07.2024 № 684-r. Available at: https://zakon.rada.gov.ua/laws/show/684-2024-p#Text (accessed: 20.05.2025)*
12. *Tulush, L.D., Samoshkina, O.A., Hryshchenko, O.Yu. (2024). Reformuvannya systemy fiskal'noho rehulyuvannya rozvytku ahrarnoho sektoru ekonomiky ta sil's'kykh terytoriy: monohrafiya. [Reforming fiscal regulation system of the development of agricultural sector and rural areas: monograph.]. Kyiv: NSC "IAE", 240 p. (in Ukrainian)*

Vladimir Shedyakov
ORCID: https://orcid.org/0000-0003-2779-3736
DSc (Sociology), PhD (Economics), Associate Professor, Freelancer Scientist (Kyiv, Ukraine)

SOCIAL IMPACT: SOURCE OF THREATS AND/OR OPPORTUNITIES

https://doi.org/10.5281/zenodo.15709827

Abstract
Social impact is studied as a multi-aspect phenomenon that can have completely different directions. The parties and potential of the social level of impact change, acting as an important factor in global, regional and national transformations. In particular, after the "information explosion", naturally, the importance of information flows and, accordingly, the ability to work with them has increased dramatically. Information-analytical work is considered as an obligatory component of a positive impact on processes for security and development, as well as a complex of organizational-managerial relations. Attention is drawn to the fact that ultimately the socio-economic efficiency of organizational-managerial work depends on the adequacy of conditions and prospects, on the ability to use the advantages and localize the shortcomings of processes in relation to space-temporal characteristics. The extraordinary importance of information and analytical work is revealed when changing the social paradigm, when the interaction of patterns becomes more complex and the role of chance increases sharply, strategic uncertainty increases, and the mosaic nature of perception intensifies.
In the conditions of the critical time of making a choice of the historical scale, information and analytical activity can become an influential factor in determining the subsequent orbit of transformations. Information impacts can affect not only the short-term situation, but also long-term trends and processes. Accordingly, critical perception and independence of thinking are necessary prerequisites for the high-quality manifestation of civic activity, preparation for responsible participation in the fate of the people. Thus, the role of information and analytical activity in making historical-level decisions is shown in conditions when not so much one-time special decisions become useful as the cultivation of an adequate environment that supports the trends of progressive development of the organizational structure, as well as the

formation of points of concentration of positive changes (stimulating environment and growth clusters). The range of resource-methodological capabilities of information-analytical work to prevent / overcome strategic confusion is shown. Practical and theoretical recommendations are given for improving information and analytical work in relation to organizational-managerial activities at a turning point in the world-historical process.

Keywords: *social impact, influence, information-analytical work, turning point, uncertainty, regularity, chance, probability.*

Introduction

The problem of the next impulse to reform innovations has two sublevels. The first is associated with maintaining conditions for the self-deployment of the "immune system" of the economy, its spontaneous rejection of unviable projects and industries; here the leading levers are the natural activity of innovators, the enterprise of organizers, and incentives for labour activity. The socio-economic community itself can cope with some obstacles, localizing them and causing compensatory actions of counterparties. The second sublevel is formed by the need for correction by both economic-organizational and non-economic means. In times of crisis, the role of the second sublevel increases, requiring clarification of the place of the state, regions and cities in state and municipal entrepreneurship. Objectively, periods of serious tension in the country are activating both reveal problem areas of vulnerability and force one to turn to the development and security potential. Both external and internal social influences (purposefully organized or spontaneous) are capable of significantly influencing the environment, direction and pace of transformations. Often, the unconscious irrational impulses of behaviour are later legitimized and justified by reason. The ability to obey a sense of duty is the most important condition for security and development. The ability to identify and use the historical situation, in particular, new trends in the security and development of society, largely depends on the subjectivity of transformations, the talent and professionalism of the ruling groups. Organizational-managerial relations not only permeate the system of social relations; they connect and mobilize, influence the vector and dynamics (including difficult to identify) of processes.

Information-analytical work is a necessary factor in effective organizational-managerial activity (for example, strategic design and planning). Of course, even a prepared (in particular, information-analytical and organizational-managerial work) and calculated impact does not always lead to the expected results.

Materials and Methods

The subject of the study is the post-global transformations of means of social impacts. Preparation and realization of actions to influence at the social level are considered from the standpoint of one of the options for completing the information-analytical cycle. To realize the influence, factors are identified related to post-global changes in conditions and the organizational-managerial efforts, the role of peoples and ruling groups. The information base of the study consists of regulatory acts, domestic and foreign publications, research on the content of international economic relations, the direction and nature of global development megatrends, and the role of transitional periods. The methodological substantiation of the material is based on the unity of the concrete-historical and abstract-logical approaches. The methodology of the work consists of the resource-methodological bases; firstly, socio-economic comparative studies, secondly, future-diagnostics.

Results and Discussion

Objectively, periods of serious tension in the country are activating both reveal problem areas of vulnerability and force one to turn to the development and security potential.The overthrow of world hegemony not only means a transition to post-global conditions, but also intensifies competition for the model of the future structure and for a place in it (Blackwill & Harris, 2016; Desai, 2013; Engdahl, 2009; Shedyakov, 2024). Both external and internal social influences (purposefully organized or spontaneous) are capable of significantly influencing the environment, direction and pace of transformations.

The social level of influence acquires additional opportunities, channels and means (Shedyakov, 2019a, 2019b, 2020; Zimbardo, & Leippe, 1991). Often, the unconscious irrational impulses of behaviour are later legitimized and justified by reason. The ability to

identify and use the historical situation, in particular, new trends in the security and development of society, largely depends on the subjectivity of transformations, the talent and professionalism of the ruling groups. Organizational-managerial relations not only permeate the system of social relations; they connect and mobilize, influence the vector and dynamics (including difficult to identify) of processes. The expansion of the possibility of virtual worlds' using leads to an increase in the vulnerability of reality, in the complication of configurations in the change of alienation and humanity (Baudrillard, 1978; Berger & Luckmann, 1966; Zuboff, 2019). Information-analytical work is a necessary factor in effective organizational-managerial activity (for example, strategic design and planning). Of course, even a prepared (in particular, information-analytical and organizational-managerial work) and calculated impact does not always lead to the expected results.

During the Axial Age, the instruments of influence are reformed and the effectiveness of each of them changes (Rushkoff, 2010, 2024; Perkins, 2004; Shedyakov, 2022). After the information explosion, the channels and means of delivering information became much more sophisticated, the methods of influencing consciousness and behaviour developed like an avalanche in a wide range. Meanwhile, foam usually appears on the crest of the waves of history, and often various garbage is brought to the historical arena. Often, in order to obtain a conveniently manipulated, easily controlled population, the ruling groups see an advantage for themselves in restraining both freedom of opinion (in favour of promoting their views) and critical perception. In turn, various info-businessmen, by influencing the images themselves, by no means mystically influence reality, shape the perception of history and possible prospects.

Meanwhile, the ecumene is preserved and developed by the forces of moral self-regulation. The ability to obey a sense of duty is the most important condition for security and development. The importance of each person's moral-spiritual choice is growing (Gates, 2014; Luhmann, 1979; Porter & Cramer, 2006; Urry, 2000). It is the moral cores that create, organize and protect society and its economy through traditions, foundations and customs. The possibilities of constructive influence here are limited: the most

important socio-economic and even more so moral-ethical innovations are not thought up and implemented purposefully, but spontaneously grew on the basis of value-sense complexes of cultural-civilizational worlds. Often, rationalism only legalizes decisions made on the basis of irrational motives. Each step of cultural transformation, as a rule, causes a subsequent retrograde course of the historical process. At the same time, the development of the results of instrumental transformations in the post-global ecumene has already led to a change in role balances. The maturation of a knowledge society forms its own range of requirements and priorities. Accordingly, within the framework of socio-economic strategies, it is necessary to solve the issues of maintaining both a stimulating environment and growth clusters, finding ways to resolve the contradiction between the objective need to cultivate creative talent (primarily spiritual) and the "brain drain" in the direction of the most prosperous regions of the ecumene. The first emphasizes the role of the Super-Project of Development, the second – the formation and cultivation of scientific-educational-production clusters with a core of think tanks and with the development of improvement of resource-methodological bases. In fact, mastering this need for reflexive dissent, even large organizational structures "with history and traditions" create alternative research groups to develop new ideas, approaches and solutions.

Moreover, the transition period naturally exacerbates contradictions (up to antagonisms), enhances the mosaic and eclecticism of society, creating additional prerequisites for manipulation. The transitional moment provides additional grounds for fragmentation of the perception of ideas, assessment of people, events and processes (Moles, 2019; Shedyakov, 2025). A complex of material, spiritual-ideological, informational, psychological conditions of instability of cultural-civilizational worlds is created, which are tested for stability and flexibility in the search for answers to the challenges of the time. In turn, under the pressure of egocentrism, a person's perception at a crossroads becomes more selective, acquires different density and sensitivity, emotional aggravation, as well as discontinuity. The potential for social and individual influence expands. Confusion, chaos of reality is superimposed on the growth of opportunities for using information

flows associated with various pictures of the world. A kaleidoscope of fragments of approaches and facts (and even legends and fables) without a critical view and a meaningful civic position adds up to a hodgepodge of perception. Personal and group interest purposefully focuses not only opinion, but also action. Human life is a unity of biological, social-spiritual levels of existence. As is known, the result of biological movement is associated, in particular, with reproduction: both of man himself and the surrounding bio-natural environment. The social level of results is characterizing of improvement of social life (social structures and institutions, non-institutionalized social relations, etc.). Spiritual life is realized as the tension of spiritual-mental-moral-intellectual efforts in the creation of the best, the creation of something new, self- and mutual expression, self- and mutual improvement. Obviously, both socially useful and harmful deviations from the developed patterns and rules are possible. Deviations can take different forms and lead to different consequences. Biological reproduction, social-spiritual creativity forms the wealth of search diversity. Peace, justice, compassion, mercy, partnership, cooperation... What scenarios preserve and elevate the people? Freethinking and consistent civic activity for the development and protection of society are much more important than loyalty and executive fidelity. Self-esteem is reinforced by defending freedom of choice, independence of judgment, readiness to fight for one's views and opinions, critical reflective thinking and an active civic position.

With the shift of the core of social wealth (and hence the basis of power) to the sphere of creativity (at this stage, primarily spiritual and intellectual), the bearers of such potential, its increase / development and deployment have found themselves at the forefront of both alienating forces and confrontation. The difference in the productivity of spiritual activity, which has directly merged not with the results of labour, but with the process of activity itself, has an effect. Accordingly, there is competition for "brains", for the identification and realization of the most pronounced inclinations, therefore, for access to the benefits of material and spiritual culture, the direction of social inclinations, and ultimately, the system of moral-spiritual values. The drift of value orientations, the state and shifts in the socio-cultural space of the cultural-civilizational world

are among the leading factors in the hierarchies of assessments and preferences. This, in turn, sharply increases interest in the means and methods of controlling social behaviour, in the social level of information impact, etc. Thus, the dynamics of value-sense complexes proves to be a weighty argument in winning over "minds" and is closely linked to the possibilities of using information influence at the social level. The return of consciousness to its moral sources – the doctrine of righteous life - is an indispensable condition for overcoming irrationalism by social relations and the political regime, the need for both a meaningful implementation of a life strategy and conscious civic activity. As is known, the original foundation of the endless global crisis is amoralism and a departure from the highest moral ideals, values and principles (in particular, acts of active self-sacrifice and compassion). The implantation of amoralism (in particular, sexual promiscuity) is an effective means of not only increasing mutual alienation, but also of atomization-chaotization of society with an increasing threat of its disintegration. And trust in the elite, the absence of real self-governing modules and developed unstructured management as a driving force for progressive state transformations becomes a factor of instability. Meanwhile, sovereignty becomes complete precisely when the state sovereignty is filled with people's, public, self-regulating sovereignty on the foundation of basic value-sense complexes of the cultural-civilizational world. That is, reliance on people's tradition and socio-historical experience allows us to transform knowledge and understanding of what is happening into the basis for constructive intervention in reality, organically expanding the development potential and consolidating the ascending orbit of transformations.

Optimization of the use of resources and methods of revival and development in the process of new modernization requires, first of all, determining the direction of transformations. The need to identify prospects for organic long-term socio-economic growth requires rejecting competing approaches. For example, social dependency with a focus on regular flows of humanitarian aid from outside can serve only short-term goals, but by no means be the basis for long-term trends. The embodiment of the "Marshall Plan" solves the problems of subordinating markets, selling surplus products and

services, etc. for the global hegemon. At the same time, neither agriculture, nor mediation, nor tourism, etc. provide either a socio-economic recovery or the quality of demand for the population by the national economy. Consequently, they do not provide a solid foundation for sovereignty and development. But the creation of a social system beneficial to the creativity of each, on the one hand, forms a structure for strengthening security and growth. On the other hand, if urgent changes are ignored, labour relations can become a significant factor in strategic-level dangers. A creative person "works with his soul" – both in the material and spiritual spheres of life. The vector of change in the dominant attitude to work in society is both one of the indicators of the socio-cultural landscape, and a characteristic of the existing conditions of activity, and an indicator of the quality of common goals and interests. On the one hand, in social relations arising in connection with creativity as the realization of a complex of individual giftedness, the significance of sociality naturally increases. On the other hand, if participation in actual production is time taken from actual human life, then creativity, on the contrary, as the embodiment of human essential forces, is the essence of human life. In other words, production relations are alienated, which presupposes and requires external influence – one or another form of coercion. On the contrary, creativity is based, first of all, on internal motivation and, as a manifestation of internal potential, is deliberately spontaneous. At the same time, the gap between the objective requirements for maximizing the development and creative embodiment of each person and the socio-political order that fixes a random place in the division of labour and property, assessed as unfair, increases. The transformation of the labour process into a form of interaction with an emphasis on the role of activity as a means of communication, development, and self-realization fixes the socio-political significance of labour-creativity. Accordingly, if the transition to post-industrial production relations was associated with a systemic movement from old technologies to new ones, with completely different principles and implying development from the attitude to labour, allowing for territorial dispersion and a network character, then the emergence of a need for mass creativity means the need to transform the social climate.

In the 90s, when a narrow layer of the population hastily

privatized everything profitable that they could get their hands on, and the rest just survived by accepting the imposed stereotypes, the education and analysis system degraded – like other vitally important substructures for society. One of the results of primitivization was the weakening of critical thinking, and even the loss of the habit of regular reading typical of the Soviet people, who was replaced by video game mania and the development of areas of the brain associated with the simplest sign systems. Dense layers of society, formed from those who had lost the habit of reading and forming their own opinions, blocked the possibilities of systematic influence of thinking individuals on social processes. Meanwhile, in the further improvement of the world order, it is necessary to implement measures to ensure: – consolidated opposition to the next cases of robbery, – prevention of the practice of crimes against humanity. In particular, it is necessary to continue the work of the Nuremberg Tribunal, the trial of Nazi and totalitarian criminals (from the crimes in Hiroshima and Nagasaki, the Vietnamese adventure with Song My and "orange", reprisals against the civilian population, military coups, etc.). To overcome the source of the crisis, the oikumene needs to focus on stopping the hybrid threats emanating from there, pushing the regimes existing there to work with society, and not to repress political protests, developing external and internal progressive alternatives, strengthening pragmatic relationships based on mutual recognition of the equality and legitimacy of the interests of each, supported by the norms of international law. The outcome of the largest confrontations (at the level of "Athens – Sparta", "Rome – Carthage", etc.) is largely predetermined by the ability to transfer their decisive operations to a convenient sphere and conditions. The aggravation of the situation requires the activation of potential and reveals points of vulnerability. Obviously, the importance of diversity of development and security directions is growing. Everything is always decided in the struggle. Every battle can be the last. Nothing is predetermined. And sometimes a trifle is missing, chance lets down. And sometimes a trifle saves. In the myriad of forks created by decisions and actions, the version of the come true from probabilistic scenarios is determined. And the degree of its probability (like the logic of historical zigzags) is not always obvious, and does not suit everyone. And it is sometimes conditioned

by such factors, the very existence of which the living has no idea. At the same time, the self-isolation of the fading favourites of the previous world order requires constant "feeding" not only with raw materials and production resources, but also with human potential. For example, the narcissism of the global hegemon sometimes distorts its perception and brings fiasco closer. Therefore, independence in the field of education and upbringing becomes one of the areas of fierce confrontation. As N. Ostrovskii stated, "the most precious thing for a person is life. It is given to him once, and he must live it in such a way that it is not excruciatingly painful for the years lived aimlessly, so that he is not burned by shame for the vile and petty past, so that, dying, he can say: all his life and all his strength were given to the most beautiful thing in the world – the struggle for the liberation of humanity. And he must hurry to live. After all, an absurd illness or some tragic accident can interrupt it".

Conclusions

Consequently, social impact can contribute to both development and decay. At the same time, when balancing the formation of a development project at the strategic, tactical and operational levels, the results of high-quality information-analytical work are absolutely necessary.

Continuous modernization of the information infrastructure is a condition for effectively passing the period of forced transformations and protecting one's sovereignty in international competition and partnership / cooperation, a prerequisite for the fruitful use of the chance that the transitional nature of development provides.

Localization of risks and increase of advantages focuses on reflexive mechanisms for maintaining a social environment favourable for positive changes and cultivating growth clusters.

The rupture of empires is fraught with discord between epigones. Accordingly, the demands on the search arsenal increase. The time of forced ones will objectively require selfless passionaries', "people of long will", and not philistines with a dream of "living for their own pleasure", cosiness, comfort, etc. The bearers of the thinking and skills formed by centuries of colonialism, usury, slavery and piracy, are furiously trying in the convulsions of a historically predetermined agony to impose their rules on the entire ecumene with the support of

military forces (by methods of both occupation and special operations), usurious operations (primarily banking, as well as other various financial institutions), unequal trade exchange (including stock exchange mechanisms) and the total lie of propaganda. And by expanding the arsenal of manipulation, they are trying to make the final vector of transformations predetermined.

References:

1. *Baudrillard, J. (1978). Agonie des Realen. Berlin: Merve Verlag.*
2. *Berger, P.L., Luckmann, T. (1966). The Social Construction of Reality: A Treatise in the Sociology of Knowledge. New York: Anchor Books.*
3. *Blackwill, R.D., Harris, J.M. (2016). War by Other Means: Geoeconomics and Statecraft. Cambridge: Harvard University Press.*
4. *Desai, R. (2013). Geopolitical Economy: After US Hegemony, Globalization and Empire. London: Pluto Press, and Halifax: Fernwood Publishing.*
5. *Engdahl, F.W. (2009). Full Spectrum Dominance: Totalitarian Democracy in the New World Order. Third Millennium Press.*
6. *Gates, R.M. (2014). Duty: Memoirs of a Secretary at War. Knopf Doubleday Publishing Group.*
7. *Luhmann, N. (1979). Trust and Power. New York: John Wiley & Sons, Inc.*
8. *Moles, A.A. (2019). Sociodynamique de la Culture. Walter de Gruyter GmbH & Co.*
9. *Perkins, J. (2004). Confessions of an Economic Hit Man. New York: Plume.*
10. *Porter, M.E., Cramer, M.R. (2006). Strategy and Society: The Link between Competitive Advantage and Corporate social responsibility: Toward the moral management of organizational stakeholders. Harvard Business Review. Dec., 78-92.*
11. *Rushkoff, D. (2010). Program or Be Programmed: Ten Commands for a Digital Age. New York: OR Books.*
12. *Rushkoff, D. (2024). Program or Be Programmed: Eleven Commands for the AI Future. New York: OR Books; 2nd ed.*
13. *Shedyakov, V. (2019). Economics of development or dying away: the role of social and information technologies. Development of modern science: the experience of European countries and prospects for Ukraine / Jankovska, A. (scient. ed. and project dir.). Riga: Baltija Publishing, 289-307. DOI: https://doi.org/10.30525/978-9934-571-78-7_16*
14. *Shedyakov, V. (2019). Social technologies and communications: basic*

trends of changes. Scientific Development of New Eastern Europe: Proceed. of Intern. Scient. Conf. Riga, (I), 128-130. DOI: https://doi.org/10.30525/978-9934-571-89-3_45

15. *Shedyakov, V.E. (2020). The mastery of social pedagogy is an integral condition of organic economic development. Anti-Crisis Management: State, Region, Enterprise / Bendaravičienė, R., Shaposhnykov, K. (eds.); Vytautas Magnus University. Kaunas: Baltija Publishing, 89-106 DOI: https://doi.org/10.30525/978-9934-26-020-9-7*
16. *Shedyakov, V.E. (2022). Catharsis and socio-economic development: actualization of opportunities. International Partnership and Cooperation of Ukraine in Wartime / Nascimento, D., Starchenko, G. (eds.); University of Coimbra. Coimbra: REICST, 234-242. DOI: https://doi.org/10.54929/monograph-02-2022-03-01*
17. *Shedyakov, V.E. (2024). Emphasizing one's own models for strengthening development and security is a condition for protecting sovereignty. Contemporary Transformations of Social Development: New Challenges and Perspectives / Alves, L.R., Starchenko, G. (eds.); Universidade Estadual do Oeste do Parana-Unioeste Nucleo de Desenvolvimento Regional (NDR). Toledo: REICST, 49-61. DOI: https://doi.org/10.54929/monograph-06-2024-02-03*
18. *Shedyakov, V.E. (2025). The eclecticity of social life during the New Axial Time. Modern tools and methods of scientific investigations: Proceed. of V Intern. Scient. and Theor. Conf. Antwerp, 126-133. DOI: https://doi.org/10.36074/scientia-11.04.2025*
19. *Urry, J. (2000). Sociology Beyond Societies: Mobilities for the Twenty-First Century. Routledge.*
20. *Zimbardo, P. G., & Leippe, M. R. (1991). The psychology of attitude change and social influence. New York: McGraw-Hill.*
21. *Zuboff, S. (2019). The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power. New York: Public Affairs.*

Urszula Szczytyńska
ORCID: https://orcid.org/0009-0000-3980-2113
Master of Economics, Assistant
Aleksander Kasprzyk
ORCID: https://orcid.org/0000-0003-1791-651X
PhD in Economics, Assistant Professor
Faculty of Technical and Economic Sciences
State Vocational University of prof. Stanisław Tarnowski in Tarnobrzeg
(Tarnobrzeg, Polska)

THE IMPORTANCE OF QUALITY COSTS IN ASSESSING THE EFFICIENCY OF BUSINESS MANAGEMENT

https://doi.org/10.5281/zenodo.15709845

Abstract
The aim of the article was to show the importance of quality costs as an effective tool for optimizing the level of costs, improving the quality of manufactured products and services and an important element of profit maximization. The authors presented the evolution of the concept of quality costs, their role in assessing the effectiveness of unit management and the results of an empirical study on the universality of quality cost records and the motives for their analysis in 62 entities conducting business activity. The article uses an analysis of literature in the field of quality management, economics, accounting and an analysis of data obtained as a result of a survey.

Keywords: *quality costs, management efficiency, cost optimization.*

Introduction

Modern enterprises must take into account a strong dependence on consumers who are increasingly aware of the quality of the products and services offered. A product that does not meet consumer requirements generates losses. To meet customer requirements, companies must measure and control costs related to quality, which has become a generator of financial success.

Quality costs are inextricably linked to quality, which is difficult to define clearly. Quality is an interdisciplinary concept and each field of science adapts the meaning of this term to its own needs and

requirements (Bareja, Giedroyć, 2007, p. 32). The ancient philosophers Plato and Aristotle associated quality with perfection that can be experienced in everyday life, but its assessment is subjective. Other great philosophers R. Deskartes and J. Locke understood quality dualistically, as primary (being in the object) and secondary (emitted by the object). This approach was questioned by Kant and F. Fogel, who treated quality as a category equivalent to being (Bareja, Giedroyć, 2007, p. 32). A major contribution to the theory and practice of quality was made by W. A. Shewhard, who developed the basic principles and factors of the quality control process. His thoughts became an inspiration for work in the field of quality management undertaken by W. E. Deming, J. M. Juran, Ph. B. Crosby and K. Ishikawa, A.V. Feigenbaum. Product quality, in the concepts of these quality teachers, is understood as meeting specific requirements of buyers, usefulness in use, eliminating uncontrolled variability, and freedom from defects (Hamrol, Mantura, 2006, p. 93-97; Ciechan-Kujawa, 2005, p. 15-17).

The Polish standard PN-EN ISO 9000:2015 defines quality as 'the degree to which a set of inherent properties meets the requirements' (Polish Committee for Standardization, 2016, p. 22). According to the standard, quality may be low, good or excellent. The ISO standard defines it as the ability to satisfy and influence customers (Polish Committee for Standardization, 2016, p. 6).The entity that verifies quality is the consumer, therefore the concept of quality must take into account her or his needs and expectations (Ciechan-Kujawa, 2005, p. 13). At the same time, it should be noted that management theory and practice indicate the individual perception of quality by individual market participants, i.e. producers, consumers, buyers and sellers (Astapczyk, 2011, p. 232). All these entities should treat quality as an important element of their management strategy.

Materials and Methods

The aim of the article is to show the importance of quality costs as an effective tool for optimizing the level of total costs, improving the quality of manufactured products and services, and an important element of profit maximization. The authors of the article present the evolution of the concept of quality costs as a field of management sciences and their role in assessing the effectiveness of unit

management. The materials they used are a wide range of literature and the results of their own empirical research on the commonness of quality cost recording and the motives for their analysis by enterprises. The article uses the method of analyzing literature in the field of quality management, economics, accounting, and the quantitative and qualitative development of data obtained as a result of a survey.

The first mentions of quality costs appeared in the 1940s. The first attempt to define quality costs was made by J.M. Juran in 1951, defining it as an instrument for measuring quality. Subsequent definitions of quality costs, determined in the years 1961-2017, drew attention to other areas of quality activities (Sadkowski, 2019, p. 82-85):

- aspect of imperfections and emerging defects of products and services (F. M. Balland, J. Campanel-la, Ph. B. Crosby, Y. S. Chen, K. Tang, J. M. Groocock, S. K. Krishnan, D. C. Wood, J. Campa-nella, ISO standards;
- flawless operation (Ph.B. Crosby, J.M. Groocock);
- expenditure allocated to achieving the assumed quality level, occurring in all areas of project implementation (T. Borys, A.V. Feigenbaum, J. Gryc, B. Oyrzanowski, Ministry of the Machinery Industry, T. Wawak, Z. Zymonik);
- preventing, detecting, correcting faulty work (ASQC, Y.S. Chen, K. Tang, A.V. Feigenbaum, A.R. Mukhopadhyaya, E. Nowak, S. Sojak, J.Pike, R. Barnes;
- source of generating losses and defects (ISO standard, S.M.H. Collin);
- diagnostic indicator (K. Lisiecka);
- a tool for measuring and controlling product quality (J.M. Juran, B Oyrzanowski);
- the difference between the actual cost of production and the cost that would arise if there were no deficiencies, errors, failures (F.M. Band, J. Campanella, N. Chiadomrong, V. Kaj-dan);
- financial measure of relevant information (L.Weinstein, R.J. Vokurka, G.A. Graman;
- a significant aspect of the development of quality management systems (J.J. Dehlgaard, K. Kristensen, G.K. Kanji);
- any deviation from customer requirements is defined as a loss (G.

Taguchi);
- failure to meet identified (specified) customer requirements (K. Szczepanska).

The variety of activities and features determining quality makes it difficult to provide a clear definition of quality costs. According to M. Ciechan-Kujawy (2005, p. 56), 'this is due to (...) differences in the approach to quality and the fact that in companies the areas of activities related to quality and other processes interpenetrate each other'. In the literature, 'however, the dominant approach is to recognize quality costs as assessed expenditure incurred to ensure quality or in connection with failure to achieve satisfactory quality' (Lew, Maruszewska, Szczypa, 2021, p. 320). In this approach, quality costs can be divided into (Jaruga, Kobalski, Szychta, 2014, p. 663):

- costs of quality adjustment (preventing poor quality):
  - prevention costs,
  - quality control costs;
- costs of quality mismatch (costs of poor quality, costs of errors):
  - internal costs of errors,
  - external costs of errors.

Prevention costs are the costs of actions taken by an entity to prevent the occurrence of insufficient quality of products and services. These include: costs of quality planning, project verification in terms of quality, preventive inspections, employee quality training, functioning of employee quality teams, process analysis, identification of customer needs, and supplier selection (Jaruga, Kobalski, Szychta, 2014, p. 663-664). The costs of quality control (assessment, estimation) may be incurred before the start of production (supplyinspection), during production (process control, equipment inspection) and after production (product testing) (Jaruga, Kobalski, Szychta, 2014, p. 664).

Error costs are those costs that 'result from the failure to adapt the product or service to the receiver's requirements' (Jaruga Kobalski, Szychta, 2014, p. 664). Detected before the product or service is delivered to the customer, these are, according to the cited authors, internal costs of errors (costs of waste, reprocessing and control corrections), revealed in the quality control process. External costs of errors identified after delivery of the product or service to the

recipient (complaint handling, warranty repairs, compensation for customers, loss of reputation).

The IO 9004-3:1994 standard classifies quality costs as (Popiel, 2019, p. 173-174):

- internal quality assurance (operational) costs incurred to achieve and maintain the established quality level:
  - compliance costs (prevention and assessment),
  - costs of non-compliance (internal errors and external errors);
- costs of external quality assurance, related to obtaining evidence objectively confirming quality by certification bodies and independent opinion-forming centers:
  - product presentation costs,
  - costs of compliance assessment by independent opinion-makers.

Prevention costs are costs 'incurred to create optimal conditions for achieving the required level of quality (Hamrol, 2005, p. 427). These include (Lew, Matuszewska, Szczypa, 2021, p. 323):

- costs of planning the quality of new products;
- costs of improving the quality of products manufactured so far;
- costs of implementing the quality system, e.g. organization of internal training, quality audits, preventive actions, purchase of specialized means (equipment) used during internal inspections;
- quality promotion costs;
- costs of market research, e.g. evaluation of sub-suppliers, comparative research, understanding needs and user requirements. Assessment costs 'incurred to ensure that processes are running properly. The tendency for them is that they are the lower than the higher expenditure has gone on quality assurance in the design phase (Hamrol, 2005, p. 427).

Assessment costs include the following ones (Hamrol, 2005, p. 323):

- qualitative acceptance of input materials;
- internal control of the production of products and semi-finished products during their production;
- final inspection of finished products;
- maintaining tools and control and measurement equipment in technical working order;
- trials and laboratory tests;

– analysis of inspection results.

Incompliance costs are the costs incurred as a result of an unacceptably large discrepancy between the quality obtained and the required quality (Hamrol, 2005, p. 427). This classification includes the costs of internal and external errors.

The costs of internal errors 'arise if the quality of the product or service is lower than the design quality, and this fact is detected before the product is transferred to an external receiver. They are the result of an incorrectly performed process of producing or providing a service' (Hamrol, 2005, p. 427).In the ISO Standard, they are defined as damage costs. These include the following ones:

– irreparable deficiencies;
– corrections, modifications, repairs;
– detecting and deleting defects;
– repeated inspection and testing of repaired materials (products);
– losses caused by the sale of defective products;
– losses incurred as a result of unsuccessful purchases;
– costs of downtime of machines, devices and employees (Popiel, 2019, p. 176).

The costs of external errors are the result of poorly organized control. The Polish ISO standard interprets them as "loss" and treats them as avoidable costs. A. Hamrol includes the costs of repairs and warranty service, complaints, returns and loss of reputation on the market. In the literature, this group of costs also includes: costs of discounts, punishment for legal liability, and negative currency exchange rate differences.

External quality assurance costs include 'the costs of detailed and additional quality assurance, procedures, data, demonstration trials and evaluations. They are caused by customer audits and the expense of officially certifying systems quality in the company' (Ciechan-Kujawa, 2005, p. 74). The ISO standard divides them into the costs of assessing the compliance of the quality system by certifying institutions and the costs of testing and assessment of product properties by independent research centers.

The division of costs proposed in the ISO Standard can be related to typical phases of processes taking place in an enterprise (planning, supply, production, sales). It can be used in the reference system of the enterprise system after adapting it to the internal accounting

policy. It can be assumed that the group of external quality assurance costs will be fixed, and operational costs can be considered controllable (Ciechan-Kujawa, 2005, p. 74).

The classifications of quality costs presented in the article do not exhaust the subject of the division of quality costs. In the literature of the subject are also described the other examples of quality cost classification based on American, Japanese, Taiwanese, British, Polish thought, TQM philosophy, British and French standards.

The concept and classification of quality costs have evolved over the years. In the modern economy, in which the great emphasis in enterprise management is put on reducing the costs of manufacturing and services, quality costs have become an important element of profit maximization, and the basic tool for managing them is the quality cost account (Sadkowski, 2019, p. 208).

Quality cost accounting is a separate part of unit cost accounting (Nowak, 2014, p. 212) and is an important element of the quality management system. It combines records, analysis and cost assessment, conducted to ensure quality at every stage of manufacturing. It is also treated as a system of actions taken to improve quality (Ciechan-Kujawa, 2005, p. 84). It serves as a tool used in the process of optimizing the company's basic operational activities, which will eliminate its weaknesses and ensure high quality of manufactured products and service provided (Astapczyk, 2011, p. 235).

Quality cost accounting belongs to the group of problem accounts, usually kept outside the accounting recording and reporting system. It is focused on the internal needs of the entity management and it is subordinated to planning, control and decision-making activities. It does not have systematic character. It does not have to be conducted in accordance with the Accounting Act. Its main task is to provide information supporting the process of making economic decisions (Nowak, 2015, p. 165).

The main task of quality cost accounting is to increase the unit's efficiency, achieved by identifying the sources of fluctuations from quality requirements, measuring them and implementing corrective actions to eliminate these irregularities (Zymonik, Hamrol, Grudowski, 2013, p. 144).

The following tasks of quality cost accounting are also considered

to be important (Zyminik, Hamrol, Grudowski, 2013, p. 236):

- assistance in establishing quality policy, including quality criteria required by the market;
- identifying weak points in implemented processes and optimal planning of quality control;
- identifying projects which serve for reducing the costs and improve quality;
- facilitating cost-based quality planning considering the costs combined with the value analysis;
- disclosure of inflated costs.

The above-mentioned tasks can only be carried out if (Ciechan-Kujawa, 2005, p. 85):

- recording quality costs is organized and implemented in accordance with applicable economic principles;
- quality cost data is current, reliable and transparent;
- costs are analyzed, determining their causes and where the costs arise;
- when assessing costs, their size and quality cost indicators are taken into account;
- cost reports present the development of costs over time and refer to planned costs.

The development and implementation of quality cost accounting in a unit is a multi-stage task. It is necessary to determine the sources of these costs, verify the chart of accounts and include accounts in their records, establish procedures for the classification of quality costs, determine people responsible for the correct marking of source documents enabling their assignment, the method of presenting quality costs in reports and the principles of their analysis. This requires further education of employees on the costs of quality and close cooperation between the management, accounting and controlling departments (Lew, Maruszewska, Szczypa, 2021, p. 330-332).

The tasks of quality cost accounting can be performed by controlling functions. Cost control is planning, steering and controlling their level as well as creating the basis for determining the effectiveness of control and corrective actions taken. This is particularly important for determining the degree of achievement of quality management goals and verifying the adopted quality

improvement programs (Ciechan-Kujawa, 2005, p. 86). The quality cost accounting system, which is adapted to the information needs of enterprise control, also facilitates the analysis and assessment of fluctuations between planned and achieved values, which should contribute to improving the efficiency of the use of enterprise resources (Kister, 2005, p. 87).

The most important benefits of introducing quality cost accounting in the enterprise are (Astapczyk, 2011, p. 237):

- obtaining information on the level of quality costs in terms of the entire enterprise and individual product, product or service;
- adjusting production to the needs and requirements of customers;
- possibility of determining the causes of non-compliance with quality requirements;
- mobilizing employees and management staff to actively participate in the process of quality assurance and quality management;
- reducing and optimizing quality costs;
- customer satisfaction with receiving a product (service) consistent with expectations;
- sales increase.

However, it should be remembered that the development and implementation of quality cost accounting should be a mean leading to the realization of these benefits, and not the aim in itself.

Efficiency is one of the basic concepts in management and economics. Due to its interdisciplinary nature, it is defined in various ways in the literature. P.F. Drucker (2004, p. 228) considers it as the main factor in the development of the organization, the way of achieving the goal. E. Skrzypek (2003, p. 431) emphasizes that it can be achieved when it is treated as a process that includes phenomena occurring within the organization and between it and the environment. This process requires continuous improvement and development.

In management, the importance of organizational effectiveness is emphasized, which for E. Szymańska (2010, p. 156) is the ability to adapt to changes that occur in the environment and to use the individual's resources productively. The effectiveness of an organization is influenced by economic and non-economic efficiency. Economic efficiency is a measure of operational effectiveness and economy. E. Skrzypek (2003, p. 430) defines it as

'the limit of achieving the best results'.

G.A. Rummler and A.P. Brache (2000, p. 55) introduced the reference of non-economic efficiency to three levels: organization, process and workplace. Organizational factors include: the strategy and objectives of action adopted by the entity, methods of their measurement, organizational structure, method of using resources. All of them are closely related to the processes carried out by the entity, the result of which should be a product/service that will best meet consumer requirements. This will not be possible without an effective human resources policy (recruitment, promotion system, rewards, training, scope of responsibilities, work standards, feedback) (Rummler, Brache, 2000, p. 43-44).

The ISO 9000:2025-10standard (2016, p. 26) defines efficiency as the relationship between the achieved results and the resources used[2]. In this sense, the assessment of effectiveness requires answering the following key questions (Kwintowski, 2013, p. 357): Is the efficiency of the implemented process is/will be such that the effects obtained are/will be greater than the expenditure incurred? Does the value of the measures: productivity, return on assets, investments, equity, sales, profit, financial liquidity satisfy the stakeholders?

An important measure of an organization's effectiveness are the costs associated with the quality system (Skrzypek, 2000, p. 274).The assessment of the efficiency and the effectiveness of the company's operations through the prism of quality costs is extremely difficult, but necessary (Skrzypek, 2003, p. 431-432). Skillful identification of quality costs can contribute to identifying areas and trends that require improvement, eliminating sources of mistakes, and reducing production and service costs. It guarantees better understanding of areas requiring improvement, defining quality and cost goals for the next reporting period, and introducing innovative methods of measuring customer satisfaction and product quality (Gryc, 2004, p. 94).

The basic source of information about quality costs are entries in cost accounts as part of the quality cost account or incidental accounting entries kept as part of the reporting cost records in groups 4, 5 and 7 of the chart of accounts. The other information about

[2] *PN-EN ISO 9000:2025-10 ,... p. 26.*

quality costs, companies usually obtain from operational records. These materials are based on non-accounting data and these are estimates (Ciechan-Kujawa, 2005, p. 94).

Literature analysis and management practice confirm that both sources of information are used in enterprises. This method of acquisition is also indicated in the ISO guidelines. There are no clear guidelines as to which quality costs can be determined on the basis of cost accounting and which on the basis of operational records.

Companies solve this issue individually. In practice, they assuming one of two ways of determining quality costs (Ciechan-Kujawa, 2005, p. 96):

1) sporadic and incidental determination,
2) maintaining quality cost accounting with full or partial records and analysis of these costs.

The first method is based mainly on operational documents and accounts in which quality costs are recognized together with other costs. This makes it possible to obtain approximate information about the type of quality costs. Their occasional recording, supplemented by an internal audit, enables an approximate assessment of the effectiveness of the quality system. However, this method does not allow tracking quality cost trends, analyzing threats and taking preventive actions (Ciechan-Kujawa, 2005, p. 97).

Enterprises using quality cost accounting based on a chart of accounts modified for the purpose of recording quality costs, obtain detailed information on their size and structure. By choosing this method, they can use quality costing models that have been created since the 1980s. The most important of them are the models of: the Quality Research Center for Metallurgy and Machinery Industry Products "Zetom" (1978), S. Sojak (1981), H.J. Harrington (1987), K. Lisiecka (1996 and 2002), A. Polak (2003), U. Balon (2007), Z. Zymonik (2003), M. Ciechan-Kujawy, A. Ki-ster (2005), J. Toruński (2011), U. Sulowska-Banaś (2013), J. Wierzowiecka (2015).

Detailed registration of quality costs should be the basis for their analysis and making subsequent decisions in the field of quality management. Its results allow us to determine, among others: places of quality costs, their internal structure, deviations from planned costs, their dynamics, reasons for their occurrence, share in revenues, production costs, and impact on the financial result.

In order to properly assess and interpret the information provided by the recording and operational system of quality costs, they should be considered in connection with the elements with which these costs have specific relationship with, e.g. production volume, sales volume, profit, sales revenues, purchase value, production cost, total quality costs. The literature of the subject provides a number of measures and indicators that can be used to assess management effectiveness. The company can choose the most appropriate one, taking into account the needs, specificity of the activity and the possibility of obtaining the data.

Taking into account the process approach to quality management, enterprises can use the level indicators and cost structure presented in Table 3.9.

Indicators can support the leaders of the organisation in assessing the effectiveness of the quality system, identifying the areas requiring special attention and establishing improvement plans (Ciechan-Kujawa, 2005, p. 119). Additionally supplemented with indicators of the economic effectiveness of quality project and quality cost structure indicators, they can be used to assess the economic effectiveness of quality projects. This approach to the problems of economic verification makes it possible to treat quality projects (goals) as all other economic goals (Hamrol, Mantura, 2006, p. 49).

The relationship between quality cost management and company efficiency is illustrated in the model prepared by A. Kister (Figure 3.4).

The input includes information about quality costs, documented with source evidence, which, after decreeing, is recorded and analyzed. The study includes: analysis of the structure and dynamics of costs, cost ratios to the remuneration of production workers and total employees, and cost budgeting. This stage enables decisions to be made regarding the optimization of quality costs. The results of the analysis (reports) are sent successively to the management (board) (K), division management (KP), department managers (KD), team managers (KZ) and employees (SP). At each organizational level, decisions are made regarding the entire enterprise, process, team, and job position. Information (reports) is generated from each level about the direction from bottom to top (Kister, 2005, p. 101). The management board coordinates all activities. Its decisions are

Table 3.9

Examples of quality cost level and structure indicators

Implemented process	Group of indicators	Indicator
Purchasing process	Loss rates	– value of rejected deliveries/value of deliveries – value of deliveries accepted with reservation/value of deliveries
	Costs indicators prevention and assessments	– input inspection costs/delivery value
Production process	Loss rates	– costs of internal errors/remuneration of direct production employees – repair costs/production value – costs of irreparable defects/production value – costs of internal shortages/production value – costs of markdowns and discounts/production value
	Cost indicators prevention and assessment	– costs of assessment/costs of production
Marketing and sales process	Loss rates	– complaint costs/sales value – warranty and warranty costs/sales value – value of returns/value of sales – costs of damage during transport/sales value – return value and sales value
	Cost indicators prevention and assessment	– costs of research into customer's needs, requirements and satisfaction/total costs
Quality management process	Loss rates	– internal deficiencies/quality costs – external deficiencies/quality costs – total costs of shortages/profit
	Cost indicators prevention and assessment	– prevention costs/quality costs – assessment costs/quality costs – prevention costs/profit
	Organizational level indicators	– quality costs/sales revenues – quality profits and losses/sales revenues – quality gains and losses/quality costs

Source: own study based on M. Ciechan-Kujawa, Quality cost accounting, Economic Office, Kraków 2005, pp. 117-118.

made on the basis of reports on quality costs and the causes of their occurrence, 'they are aimed at the end result, which is the efficiency of the company' (Kister, 2005, p. 103).

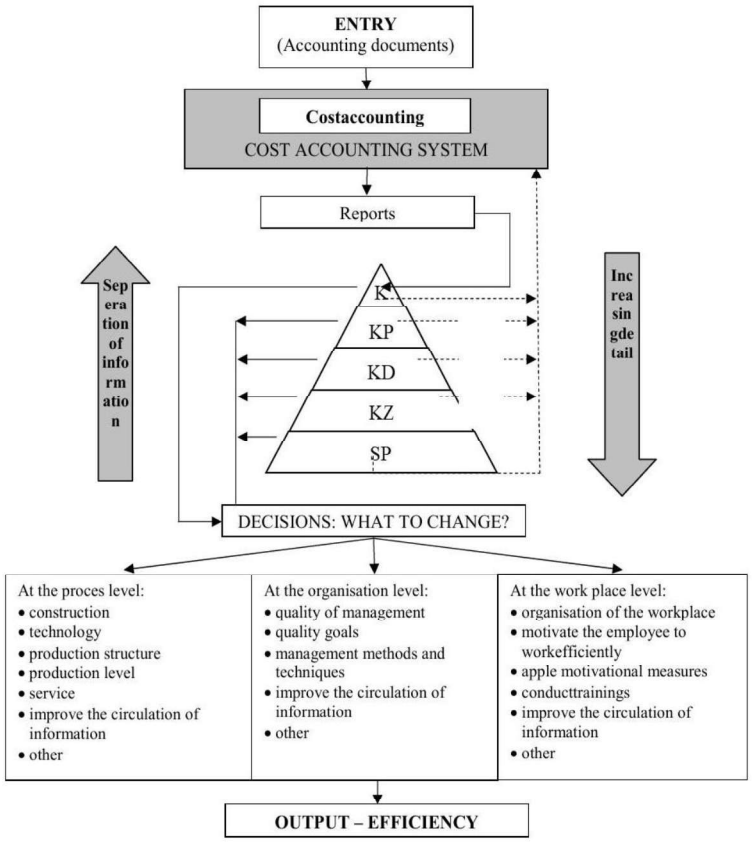


Figure 3.4 Model of the relationship between cost management and enterprise efficiency

Source: A. Kister, Quality cost management, Economic Office, Kraków 2005, p. 100.

'The introduction of a quality cost management model leading to an increase in the company's efficiency will be possible if the following assumptions are met' (Kister, 2005, p. 99):

1) input data- these are prepared accounting documents;
2) cost accounting concerns both documented costs and those based on estimates (invisible);
3) the stability of cost records is ensured (principle of continuity of cost measurement and cost records;
4) decisions made by the management board in the area of quality management are based on information provided by cost accounting;
5) conclusions resulting from cost records and analysis are an important decision-making element and affect many areas of management;
6) effective decisions influence over the effectiveness of quality management and the entire organization.

The implementation of this model should make employees at all organizational levels of the company aware of the consequences of poor quality and encourage them to improve internal communication and processes. As a result, the decisions made will lead to increase in the organization's effectiveness.

Results and Discussion

The authors of the article conducted empirical research on the universality of quality cost records and the motives for their analysis. The most important goals of the study were to find out:
1) sources of information on quality costs,
2) the degree of popularity of the use of quality cost accounting,
3) motives for quality cost analysis.

Enterprises operating in the Podkarpackie, Świętokrzyskie and Lesser Poland voivodeships were asked to take part in the research (complete questionnaires). 62 entities conducting business activities participated in the study. The largest group were enterprises conducting service and service-related activities, while the smallest group were those ones conducting commercial activities. The group of respondents was dominated by limited liability companies and entities with annual revenues exceeding PLN 51,000,000, approximately 52% of the respondents were entities employing no more than 50 people.

For approximately 98.4% of respondents, the quality of manufactured products/provided services is important. The majority (approx. 57%) have implemented quality standards (ISO, industry) or

are in the process of implementing them. Detailed information about the surveyed entities is presented in Table 3.10.

Table 3.10

Summary of the surveyed enterprises according to selected criteria

Legal form			**Size of the enterprise**		
Detailing	**Number**	**%**	**Detailing (*)**	**Number**	**%**
1. Joint stock company	14	22,6	1. Micro Enterprise	13	21,0
2. Limited Liability Company	37	59,7	2. Small Enterprise	19	30,6
3. Cooperative	0	0	3. Medium-sized enterprise	16	25,8
4. Sole Proprietorship	8	12,9	4. Large enterprise	14	22,6
5. Other Legal Form	3	4,8			
Total	*62*	*100*	*Total*	*62*	*100*
Type of business			**Annual sales revenues**		
Detailing	**Number**	**%**	**Detailing**	**Number**	**%**
1. Production	17	27,4	1. Up to 3 000 000 zlotys	18	29,0
2. Commercial	9	14,5			
3. Service	25	40,3	2. Above 3 000 000 up to 51 000 000 zlotys	19	30,7
4. Commercial and service	5	8,1			
5. Production and service	5	8,1	3. Above 51 000 000 zlotys	25	40,3
6. Production and commercial	1	1,6			
Total	*62*	*100*	*Total*	*62*	*100*
Implemented quality standards			**Keeping records of quality costs**		
Detailing	**Number**	**%**	**Detailing**	**Number**	**%**
1. Implementation of the ISO standard	11	17,7	1. Keep records of quality costs	54	87,1
2. During the implementation of the ISO standard	2	3,2	2. Do not keep records of quality costs	8	12,9
3. Implementation of the ISO standard and other industry standards	7	11,3			
4. Implemented only industry standards	14	22,6			
5. During the implementation of the industry standards	1	1,6			
6. Quality standards have not been implemented	27	43,6			
Total	*62*	*100*	*Total*	*62*	*100*

Source: own study based on survey research

** Explanation: micro enterprises are those that employ up to 10 people, small enterprises - 11-50 people, medium-sized enterprises - 51-250 people, large enterprises - over 250 people.*

Enterprises recognize the costs of quality and commonly record them (approx. 87%). The surveys indicate three sources of information about quality costs: quality cost accounting, reporting as part of cost accounting records and operational records. Determing the amount of quality costs are particularly interested service enterprises and those ones which combine this activity with the service and trade. In these groups, 100% of respondents determine their amount. Service enterprises are less interested in quality costs, and 24% of them do not keep records of them. Among commercial enterprises, approximately 89% keep records of quality costs, including 78% only operational records, mainly registers of complaints and notice of defect and sales department reports.

Manufacturing enterprises are the largest group using cost-quality accounting, over 94% of them also keep operative records. Among entities conducting service and commercial activities, the dominant form of records is operative ones combined with reporting costs. Detailed information on the methods of determining quality costs is presented in Table 3.11.

For 94% of the surveyed enterprises, it is important to analyze quality costs. The most important arguments they include is improving operational efficiency, identifying areas that require improvement, improving the quality of manufactured products/provided services and competitiveness. In the group of enterprises conducting production activities, the dominant motive was improving efficiency and quality and identifying areas requiring improvement (over 91% of respondents), and in the group of commercial enterprises - improving efficiency (73%) and improving customer service (53%). For enterprises conducting service activities, the most important factors are improved efficiency (80%) and competitiveness (66%). Four of the surveyed entities do not record quality costs, but recognize and analyze them, mainly in terms of improving competitiveness, improving customer service and motivating employees to eliminate errors.

Detailed information on the motives for analyzing the quality costs incurred is presented in Table 3.12.

Based on the conducted survey research, the following conclusions can be drawn regarding the sources of information on quality costs and the motives for their analysis:

Table 3.11

List of surveyed enterprises according to the sources of information about quality costs

No.	Source of information on quality costs	Number of entities	% (*)	Number of entities by type of business		
				Type of business	Number of entities	% (*)
1.	Quality cost accounting	17	31,5	Production	10	58,8
				Commercial	0	0
				Service	4	16,0
				Trade and Service	1	20,0
				Production and Service	2	40,0
				Production and Trade	0	0
2.	Accounting records of deficiencies	14	25,9	Production	6	35,3
				Commercial	1	11,1
				Service	3	12,0
				Trade and Service	0	0
				Production and Service	4	80,0
				Production and Trade	0	0
3.	Records within the recording of framework costs records	26	48,1	Production	5	29,4
				Commercial	5	55,5
				Service	11	44,0
				Trade and Service	2	40,0
				Production and Service	3	60,0
				Production and Trade	0	0
4.	Operative Records	50	92,6	Production	16	94,1
				Trade	7	77,8
				Service	17	68,0
				Trade and Service	4	80,0
				Production and Service	5	100,0
				Production and Trade	1	100,0
5.	They do not lead quality costs records	8	14,8	Production	0	0
				Trade	1	11,1
				Service	6	24,0
				Trade and Service	1	20,0
				Production and Service	0	0
				Production and Trade	0	0

Source: own study based on survey research

** Explanation: respondents could indicate all used sources of information on quality costs*

Table 3.12

List of surveyed enterprises according to their decision-making motives regarding quality cost analysis

No.	Motives for undertaking quality cost analysis	Detailing	
		Number of entities (*)	% (*)
1.	Improving competitiveness	39	67,2
2.	Reducing conducting business and service costs	31	53,4
3.	Improving the quality of manufactured products/ provided services	40	69,0
4.	Improving the efficiency of the company's operations	51	87,9
5.	Improving customer service	31	53,4
6.	Requirements of partners/shareholders/contractors	23	39,7
7.	Requirements of certifying institutions	28	48,3
8.	Motivating employees to eliminate errors	35	60,3
9.	Customer satisfaction survey	23	39,7
10.	Recognizing areas that require improvement	41	70,7
11.	Taking corrective actions	31	53,4
12.	Other motives (please specify)	0	0
13.	We do not conduct quality costs analysis	3	5,2

Source: own study based on survey research

** Explanation: respondents could indicate all the motives that guided them when analyzing quality costs.*

1) The surveyed companies considered quality costs to be an important issue. They notice and register them, regardless the size, industry and implemented quality standards.
2) The main source of information about quality costs in the surveyed entities is the company's accounting, additionally supplemented with operational records.
3) Among the enterprises that took part in the study, 31.5% use quality cost accounting, supplemented with information from operational records.
4) Operative records, based on non-accounting documents, as the only source of information about quality costs, indicate only 19% of the surveyed entities.

The information obtained about quality costs, in 94% of the surveyed enterprises are analysed, mainly to improve operative efficiency (approx. 88%).

Conclusions

For every company, high quality should be the priority of its activities. Quality costs may play an essential role in achieving this

goal. They are a difficult term to define and record. However, if quality is to be an effective tool for optimizing costs, increasing competitiveness and improving efficiency, the company must measure (estimate) and analyze them at every stage of their occurrence and use them effectively when making decisions. It can apply original concepts of Polish, American, British, Japanese schools, international and national standards or the philosophy of comprehensive quality management. The conducted research indicates that enterprises consider quality costs as an important issue, identify, record and analyze them. However, they must remember that the process of improving and improving the effectiveness of the organization is also necessary (Szczepańska, 2009, p. 13-15):

1) covering all functional areas of the enterprise with measurement;
2) linking the measurement of quality costs with the implemented processes and results of improvement activities;
3) measuring all quality costs, not only those that are easy to be measured;
4) the criteria for measuring quality costs should meet the needs of operational management;
5) using information on quality costs to assess the effectiveness of activities and improve the quality management system;
6) employee involvement, their understanding of the impact of quality costs on the improvement of the work environment, products, and customer satisfaction;
7) measuring costs in analytical terms so that the synthetic approach to quality costs has informative value;
8) proper planning and preparation of the quality cost measurement system;
9) adapting the results of quality cost measurement to the development phases of quality cost measurement.

References:

1. *Astapczyk, A. (2011). Quality cost accounting as a modern tool supporting the development of an enterprise. Scientific Journals of the University of Szczecin No. 655. Economic Problems of Services No. 71.*
2. *Bareja, K., Giedroyć M. (2007). Quality cost accounting in: A. Karmańska (ed.) Cost management of quality, logistics, innovation, environmental protection and financial accounting. Warsaw: Difin.*
3. *Ciechan-Kujawa, M. (2005). Quality cost accounting. Use in enterprise*

management. Kraków: Economic Office.
4. *Drucker, P.F. (2004). Effective manager. Konstancin-Jeziorna Ed. MT Biznes.*
5. *Gryc, J. (2004). Quality costs and their calculation in the enterprise. Quality Problems No. 03.*
6. *Hamrol, A., Mantura, W. (2006). Quality management. Theory and practice. Warsaw: Polish Economic Publishing House.*
7. *Hamrol, A. (2005). Quality management with examples. Warsaw: Polish Scientific Publishing House.*
8. *Jaruga, A.A., Kobalski P., Szychta A. (2014). Management accounting. Warsaw: Wolters Kluwer Publishing House.*
9. *Kister, A. (2005). Quality cost management. Cracow: Economic Publishing House.*
10. *Kister, A. (2004). Efficiency in the quality management system, Annales Universitatis Mariae Curie-Skłodowska. Sectio H, Oeconomia No. 38.*
11. *Kwintowski, A. (2013). A practical reflection of knowledge about the costs of quality. Scientific Journals of the University of Natural Sciences and Humanities in Siedlce. Series: Administration and management. No. 97.*
12. *Lew, G., Maruszewska, E.W., Szczypa P. (2021).Management accounting from theory to practice. Warsaw: CeDeWu Publishing House.*
13. *Nowak, E. (2014).'Cost accounting models in management accounting'. In: Czubakowska, K., Garbusewicz, W., Nowak, E. (ed.). Management accounting. Methods and application Warsaw: Polish Economic Publishing House.*
14. *Nowak, M. (2015). Cost accounting and cost management. Reflections on relationships. Scientific Journals of the University of Economics in Katowice. No. 245.*
15. *PN-EN ISO 9000:2015-10. Quality management systems. Basics and terminology. Warsaw: Polish Committee for Standardization, 2016.*
16. *Polak, A. (2003). 'Project of quality cost accounting for a selected production company'. In: Scientific Journals of the Lodz University of Technology. Organization and Management. No. 937.*
17. *Popiel, H. (2019). 'Quality cost accounting in enterprise management'. In: Modern Management Systems. Issue 14.*
18. *Rummler, G.A., Brache, A.P. (2000).Increasing the efficiency of the organization. Warsaw: Polish Economic Publishing House.*
19. *Sadkowski, W. (2019). 'Quality costs of enterprises in terms of definition'. In: Works of the Industrial Geography Committee of the Polish Geographical Society, Kraków: Jagiellonian University.*
20. *Sadkowski, W. (2017). 'Quality cost accounting – evolution,*

implementation, tasks'. In: Entrepreneurship – Education, No. 13.
21. *Skrzypek, E. (2000). Quality and efficiency. Lublin: Maria Curie-Skłodowska University Publishing House.*
22. *Skrzypek, E. (2003). Costs as a tool for assessing organizational effectiveness. Annales Universitatis Mariae Curie-Skłodowska. Sectio H. Oeconomia. No. 37.*
23. *Skrzypek, E., Czternastek, L. (1995). Quality costs, theoretical and practical aspects. Lublin: General Pension Company.*
24. *Szymańska, E. (2010). 'Enterprise efficiency - defining and measuring'. In: Annals of Agricultural Sciences. Series G, vol. 97.*
25. *Szczepańska, K. (2009). 'Dilemmas of measuring quality costs'. In: Problems of quality. No. 8.*
26. *Zymonik, Z., Hamrol, A., Grudowski, P. (2013).Quality and safety management. Warsaw: Polish Economic Publishing House.*

Chapter 4

SUSTAINABLE DEVELOPMENT TOOLS TO ENSURE THE LONG-TERM VIABILITY OF SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEMS

Franci Avsec
ORCID: https://orcid.org/0000-0002-9294- 2235
PhD in Law, Associate Professor,
Faculty of Economics and Informatics
University of Novo mesto
(Novo mesto, Slovenia)

SOCIAL ECONOMY: FROM RESOLUTIONS AND RECOMMENDATIONS TO LEGISLATION

https://doi.org/10.5281/zenodo.15709860

Abstract
The first part of paper discusses general concept and fundamental characteristics of social economy (SE), or social and solidarity economy (SSE), as addressed in separate resolutions recently adopted by the International Labour Organization (ILO) and by the General Assembly of the United Nations, as well as in separate recommendations of the Organisation for Economic Co-operation and Development (OECD) and the Council of the European Union (EU). The second part analyzes legislation on social economy in five selected EU member states.

Keywords: *social economy, social enterprises.*

Introduction

The American theory classified entities that do not aim to make a profit or do not belong to the state (public) sector into the so-called third sector, whose fundamental characteristic is non-profit orientation. On the other hand, researchers of the third sector in Europe relied more on the historical development of all organizations that do not aim exclusively to make a profit, advocating a broader understanding of the third sector, which includes, besides non-profit

entities, also other organizations where distribution of profit is limited or based on criteria other than capital participation. Typical example are cooperatives, where the surplus from operations may be distributed among members in proportion to their business with the cooperative, while upon termination of membership, and often even upon termination of the cooperative, members are entitled only to reimbursement of their paid-in shares and not to that part of assets eventually remaining after payment of creditors and reimbursement of paid-in shares.

According to the European concept, the third sector includes not only organizations that operate in the general interest of a narrower or wider community, such as associations and foundations, but also organizations pursuing common benefits for their membership on the basis of reciprocity, such as cooperatives and mutual societies (Laville et al., 1999).

After the term social economy became established in some countries for enterprises organized in a cooperative, mutual or associational form which operate in a democratic manner and use the profit for the growth of the enterprise and better services to their members (cf. "Charte de l'économie sociale" in France, 1980), the European Union began to deal with the social economy more intensively in the early 1990s, especially after the emergence of social enterprises, which carry out commercial activities pursuing social and environmental objectives. Since 2022, the relevance of the social economy for sustainable and inclusive development has been confirmed by four documents at the global and the European inter-state level.

The first part of the paper analyzes and compares the definitions of social economy in two resolutions separately adopted by International Labour Organization (ILO, 2022) and the General Assembly of the United Nations (2024), as well as two (separate) recommendations of the Organisation for Economic Cooperation and Development (OECD, 2023) and of the European Union (EU, 2023). The second part analyzes how some basic principles of social economy have been legally elaborated in five EU member states which have adopted special acts on social economy.

Methodology

In the first part of the paper, we analyzed and compared the definitions and fundamental principles of the social economy, as stated in four international documents, adopted almost simultaneously (in the period from 2022 to 2024) at the global and European inter-state level.

The second part presents legislative approaches to social economy in five jurisdictions selected among those EU member states that have so far adopted specific laws on the social economy.

Results and Discussion

Resolutions and recommendations on social economy

At the 110th International Labour Conference on 10 June 2022, ILO adopted resolution on social and solidarity economy (SSE) with regard to decent work. According to this resolution, the SSE covers "enterprises, organizations and other entities" which carry out economic, social and environmental activities adhering to following principles: 1. voluntary cooperation and mutual assistance, 2. democratic and/or participatory governance, 3. autonomy, 4. independence and 5. the primacy of the person and social purpose over capital in the distribution of profits and/or surpluses as well as assets. After stressing the SSE's orientation towards long-term viability and sustainability, the resolution lists the intrinsic values of this sector of economy: care for people and the planet, equality, fairness, interdependence, self-governance, transparency and accountability. Depending on the circumstances in individual countries, the SSE covers cooperatives, associations, mutual societies, foundations, social enterprises, self-help groups and other entities that operate in accordance with the aforementioned values and principles (ILO, 2022).

Stating values and principles, the ILO resolution reminds of the Statement on cooperative identity in which the International Cooperative Alliance (ICA) at its centennial congress in 1995 proclaimed international definition, values and principles of cooperatives. The principle of voluntary cooperation and mutual assistance is very close to cooperative principles of voluntary and open membership and economic participation of members. The

principle of democratic and/or participatory governance is expanded principle of democratic governance of a cooperative. Besides the autonomy and independence, the international cooperative principles emphasize also concern for community (ICA, 2016).

The ILO resolution explicitly refers to Recommendation No. 193 on the promotion of cooperatives (ILO, 2003), which further refers to the Statement on Cooperative Identity, quoting the international cooperative principles contained in this Statement. However, the ILO resolution does not explain more in detail the principles of the SSE.

The United Nations General Assembly adopted two resolutions with the same title (Resolution on the Promotion of the Social and Solidarity Economy for Sustainable Development) at its 77th and 79th sessions (United Nations General Assembly, 2023, 2024). The second resolution largely preserved the text of of the first one. The second version contains two newly added paragraphs, while the remaining text has been updated, including announcement of some events related to the social and solidarity economy (Global Forum for Social and Solidarity Economy, to be held in Bordeaux, France, from 29 to 31 October 2025; the General Assembly of Social Economy Europe, in October 2025; the General Assembly of the International Cooperative Alliance, in November 2025).

The Recommendation of the OECD (2023) uses the abbreviation "social economy" as a synonym for the terms "social and solidarity economy" and "solidarity economy", which are also used in some countries. OECD (2023) defines social economy very broadly, both in terms of subjects as well as their common characteristics. Namely, the social economy is "a set of organisations such as associations, cooperatives, mutual organisations, foundations, and, more recently, social enterprises", which may be, in some countries, supplemented by "community-based, grassroots and spontaneous initiatives". The basic characteristics of social economy are "social goals, values of solidarity, the primacy of people over capital and, in most cases, democratic and participatory decision-making" (OECD, 2023).

The OECD Recommendation also defines "social enterprise" and "social innovation".

A social enterprise is defined as "an entity that sells goods and services that meet a social objective and the primary objective of the

enterprise is not to maximize profits for its owners, but to reinvest profits in the continuous achievement of social objectives" (OECD, 2023).

Social innovation is defined as "a new cost-effective response to social and societal needs, such as new products, new relationships, and new relationships with stakeholders" (OECD, 2023).

In its recommendation on the social and solidarity economy and social innovation, the Council of the European Union (2023) also identified terminological problems with social economy, stating that in some EU Member States the social economy is called the "social and solidarity economy" or the "solidarity economy". Taking into account different definitions of member states, the recommendation recognises that social economy entities operate in various organizational forms, such as cooperatives, mutual organizations, associations, foundations and social enterprises. The first principle of social economy is the primacy of "societal purpose, including social and environmental goals, over profit". Social economy entities "reinvest all or most of their profits to achieve social and environmental purposes" while their activities are carried out in the collective interest (of their members) or in the general interest (of society at large). Compared to resolutions of ILO and UN General Assembly, the EU recommendation emphasizes primacy over profit, not over capital and does not mention (non-)distribution of assets of a social economy entity, while formulation with regard to profits in the EU recommendation is more precise. Another common principle of social economy is democratic *or* (emphasis added by the author) participatory governance, which depends on the nature, size and activities of each entity. Social enterprises are defined as those entities of social economy, which have social or environmental objectives as reason for their commercial activities. The notion of social innovation is explained similarly as by the OECD recommendation (Council Recommendation of 27 November 2023 on developing social economy framework conditions, 2023).

National legislation on social economy

To illustrate the different meanings of the term "social economy" and the different terms for this notion and related concepts, some basic provisions on social economy in the legislation of 5 EU

member states (France, Italy, Slovakia, Slovenia and Spain) are compared.

Since the inclusion of various categories in the social economy cannot be considered even for selected legislations due to limited space, the position of cooperatives as a business form with a long tradition and of social enterprises as a typical newer organizational form with regard to social economy was briefly mentioned in some cases.

The *Spanish* Act on social economy (Ley 5/2011, de 29 de marzo, de Economía Social) defines the social economy very broadly including all private sector entities that carry out economic and entrepreneurial activities in the common (collective) interest of their members, in the general economic and social interest or both. Social economy entities are obliged to respect certain principles established by the Act. The first principle is the primacy of persons and social purpose over capital which requires autonomous, transparent, democratic and participatory governance, where the decision making prioritise persons and their contribution in work and services or social purpose over capital. According to the second principle, the use of (positive) economic results should be, as a rule, based on the work, services and activities of the members or on the social objectives of the entity. The third principle is the promotion of internal and external solidarity, which is expressed in local development, equal opportunities regardless of gender, the inclusion of people at risk of social exclusion, stable and quality employment, the reconciliation of personal, family and professional life and sustainability. The fifth principle is independence from public authorities (art. 4). Cooperatives are included in the notion of social economy (art. 5). Although the Spanish Act on Social Economy does not recognise the notion of social enterprise (Carini et al., 2024, p. 38), similar concepts has been developed by the Spanish cooperative legislation, for instance social initiative cooperatives ("cooperativas de iniciativa social", cf. Ley 27/1999, de 16 de julio, de Cooperativas, art. 106).

According to the *French* Act on social and solidarity economy (Loi n° 2014-856 du 31 juillet 2014 relative à l'économie sociale et solidaire), the social and solidarity economy covers legal entities governed by private law which pursue an aim other than the mere

distribution of positive economic results, which are democratically managed in accordance with the statutes and provide information to and participation of members, workers and stakeholders in the entreprise activity, without the governance being based solely on capital or financial contributions. Statutory reserves are not divisible, but the statutes may authorise the general meeting to make limited use of reserves to increase the share capital. Upon the dissolution of a legal entity, the surplus after the payment of creditors' claims and the reimbursement of shares is transferred to another social and solidarity economy enterprise or in accordance with special regulations applicable to the dissolved legal entity. The Act considers cooperatives (as well as mutual societies, associations and foundations) to be an integral part of the social economy, while commercial companies are considered to be social economy entities only if they comply with the principles of the social and solidarity economy, ensure a social impact ("utilité sociale"), use at least 20% of their profits for the development fund, while at least 50 % of the profits must be allocated to mandatory reserves or carried forward to the next year and reducing the share capital is, in principle, prohibited (art. 1).

The French social and solidarity economy has also developed organisation models, close to social enterprises, for instance "entreprises solidaire d'utilité sociale" which provide at least one of five types of social benefits (e.g., support to vulnerable people, strengthening territorial cohesion, education for citizenship, protection of heritage, etc., cf. Loi n° 2014-856 du 31 juillet 2014 relative à l'économie sociale et solidaire, art. 11) and "les sociétés coopératives d'intérêt collectif" (cooperatives for common interest) which may provide benefits to non-members (Loi n° 47-1775 du 10 septembre 1947 portant statut de la coopération, art. 8).

The Italian legislature regulated social cooperatives which, "in the general interest of the community", provide social, health and educational services and carry out activities involving the work integration of vulnerable people (Legge 8 novembre 1991, n. 381…, art. 1). A later legislative decree (Decreto legislativo 24 marzo 2006, n. 155…) allowed private organizations, including companies, to obtain the status of social enterprise if they permanently carry out economic activity by producing goods and providing services of

social utility ("di utilità sociale") in 11 areas (e.g., social, health, educational and cultural services), do not distribute profits among members, managers, workers and other stakeholders, and use positive economic results to increase assets and to carry out activities.

According to the Italian Third Sector Code (Codice del Terzo settore, …) from 2017, third sector entities are voluntary associations, social promotion associations, voluntary organisations, social enterprises and social cooperatives (other cooperatives are included in the third sector only if they comply with certain requirements), mutual insurance companies, representative unions, associations, foundations and other private entities for implementation of civic, solidarity and socially beneficial purposes, which, without seeking profit, carry out an activity of general interest as their sole or main activity through (1) voluntary work, (2) free provision of money, goods and services, (3) on a reciprocal basis or (4) through production and exchange of goods and services. While the activities of social enterprises and social cooperatives are regulated by special regulations, other third sector entities may operate in 25 areas (art. 5). The position of social enterprises was newly regulated by a special legislative decree from 2017, which, following the example of cooperative legislation, introduced a similar system of supervision and promotion funds for social enterprises as that in force for cooperatives (Decreto legislativo 3 luglio 2017, n. 112, …).

According to the *Slovak* Act on social economy and social enterprises (Zákon z 13. marca 2018, o sociálnej ekonomike a sociálnych podnikoch …), the social economy is the set of productive, distributive or consumer activities carried out through economic or non-economic activity independently of state authorities, the main objective of which is to achieve a positive social impact (§ 3).

Subjects of the social economy are civic associations, foundations, non-investment funds, non-profit organizations, special purpose church institutions, commercial companies, cooperatives and natural persons – entrepreneurs who are employers provided that all these entities are not majority-controlled and financed (with exception of support measures provided by the Act) by a state

authority and that they carry out economic or non-economic activity within the framework of social economy. The subject of social economy who carries out a gainful activity according to special provisions (for instance, commercial company), must undertake that its activity is carried out not exclusively for making profit and that positive economic results will be used according to the Act (art. 4(1)).

The Act distinguishes two special statuses in the field of social economy, namely social enterprise and enterprise with social impact.

For both statuses, the Act requires that the enterprise performs economic activity continuously and independently and that the main goal of the enterprise is to achieve a social impact. A social enterprise must meet three additional requirements: 1) the products and services or the way in which products and services are produced and provided must contribute to a social impact, 2) more than 50% of the profits must be used to achieve the main objective od the enterprise, while the use of the remaining profits must not undermine the achievement of the main objective, and 3) the enterprise must involve stakeholders in its management. A social impact enterprise must meet at least two of three requirements prescribed for social enterprise (§ 5).

The *Slovenian* Act on Social Entrepreneurship (Zakon o socialnem podjetništvu, 2011) first regulated the position of social enterprises, while the concept of social economy was introduced by the amendment from 2018. The social economy is defined by the legal form of entities (social enterprises, cooperatives, disability enterprises, employment centers and non-governmental organizations: associations, institutes, institutions or foundations), and the substantive criteria that these entities must meet. The purpose of the entity must not be exclusively for the purpose of making a profit, the entity must act for the benefit of its members, users or the wider community and produce market or non-market products and services (art. 2(6)).

Stricter substantive conditions are prescribed for a social enterprise. The Act lists 11 principles of social entrepreneurship (autonomous initiative, non-profit orientation, activities in public interest, voluntary action of members, independence, inclusion of voluntary work, equality of members, participation of stakeholders in

management, transparent operations and socially beneficial activities, art. 3(2)). The Act allows the status of a social enterprise to be acquired by a legal entity under private law (for example: association, institute, foundation, business company, cooperative, European cooperative) that is not established exclusively for the purpose of making profit and does not distribute profits or surpluses and assets. Until the amendment to the Act in 2018, a social enterprise could use 20% of profits or surpluses for distribution among members and employees, while the amendment from 2018 prohibited any (direct or indirect) distribution of profits. If social enterprise is dissolved, assets remaining after the repayment of creditors and the reimbursement of paid-in shares to members, partners or shareholders, is transferred to another social enterprise or non-profit legal entity or to a municipality, which must use this property for social entrepreneurship (art. 28). A social enterprise must adhere to principle of equal voting rights of members (which may be not very appropriate for social enterprises where members are only legal persons or legal persons and individuals) and ensure participation of workers, volunteers and users in decision-making (art. 24).

To give a more comprehensive picture, it should be noted that in all EU member states the social economy has not yet become a legal concept; in these countries non-profit entities are the closest sector to social economy.

Conclusions

The concept of social economy covers entities which pursue collective interest of their members or/and general interest of narrower or larger community, without dominant profit-oriented motives and dependence on the state. The notion encompasses various legal organizational forms, ranging from established entities with a long tradition (cooperatives, associations, mutual societies) to newer models, such as social enterprises, social cooperatives and other cooperatives operating in general interest.

The substantive and terminological differences in legislation in this area between different countries are the result of specific historical, sociological, cultural and legal factors. Although two resolutions, adopted by ILO (2022) and United Nations General

Assembly (2024), and two recommendations, adopted by the OECD (2023) and the EU (2023), encourage countries to adopt appropriate legal and policy measures in this area, the legislative approaches of different countries to this topic remain substantively and terminologically different, ranging from explicit legal recognition and regulation of the social economy to narrower concepts of non-profit sector in countries where the social economy has not (yet) become a legal concept.

The legislation under consideration mainly regulates the organisational aspects of social economy, cooperation between representative organizations and state authorities, new organizational forms (e.g. social enterprises), development strategies and control mechanisms. Rarely, the legal provisions (like the Italian Third Sector Code) also contain special provisions for individual categories of social economy entities and elaborate a wide range of fiscal incentives, financial instruments and other supportive measures.

The legal provisions on social economy vary greatly on several issues. Some laws do not exclude any activity in the social economy (the French law allows social economy entities to operate "in all areas of human activity", Loi n° 2014-856 du 31 juillet 2014 …, art. 1(1)), others permit only certain activities. In most countries, social economy includes wider or narrower legal entities under private law. Very rarely, social economy subject can be an individual (as is the case in Slovakia). The principle of using positive economic results and assets for social economy activities is implemented in various ways, some explicitly allowing transfers between social economy entities even outside dissolution of one entity (the so-called external solidarity).

Encouraging business environment, but also measuring, reporting and monitoring of social impacts and efficient control system, will be very important for the future of the social economy.

References:

1. *Carini, C., Galera, G., Tallarini, G., Avila, R. C., Sak, B., Schoenmaeckers, J. (2024). Benchmarking the socio-economic performance of the EU Social Economy. https://data.europa.eu/doi/10.2826/880860*
2. *Charte de l'économie sociale. (1980). https://www.cressidf.org/wp-*

content/uploads/2018/06/charte_economie_sociale.pdf

3. *Decreto legislativo 3 luglio 2017, n. 117: Codice del Terzo settore, a norma dell'articolo 1, comma 2, lettera b), della legge 6 giugno 2016, n. 106. (17G00128). GU n. 179 del 02-08-2017 - Suppl. Ordinario n. 43. https://www.gazzettaufficiale.it/dettaglio/codici/terzoSettore*
4. *Decreto legislativo 24 marzo 2006, n. 155: Disciplina dell'impresa sociale, a norma della legge 13 giugno 2005, n. 118. (2006). GU Serie Generale n. 97 del 27-04-2006. https://www.gazzettaufficiale.it/eli/id/2006/04/27/006G0176/sg*
5. *Decreto legislativo 3 luglio 2017, n. 112: Revisione della disciplina in materia di impresa sociale. GU n.167 del 19-07-2017. https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2017-07-03;112!vig=*
6. *ICA. (2016). Statement on the Co-operative Identity. In: Guidance Notes to the Co-operative Principles. https://ica.coop/sites/default/files/basic-page-attachments/guidance-notes-en-221700169.pdf*
7. *ILO. (2003). R193 - Promotion of Cooperatives Recommendation, 2002 (No. 193). https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312531:NO*
8. *ILO. (2022). Resolution concerning decent work and the social and solidarity economy (10 June 2022). https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_norm/%40relconf/documents/meetingdocument/wcms_848633.pdf*
9. *Laville, L., Borzaga, C., Defourny, Evers, A., Lewis, J., Nyssens, M., Pestoff, V. (1999). Third system: a European definition. https://tinyurl.com/3kjjyrvs*
10. *Legge 8 novembre 1991, n. 381: Disciplina delle cooperative sociali. GU Serie Generale n.283 del 03-12-199. https://www.gazzettaufficiale.it/eli/id/1991/12/03/091G0410/sg*
11. *Ley 27/1999, de 16 de julio, de Cooperativas. (1999). BOE núm. 170, de 17/07/1999. https://www.boe.es/buscar/act.php?id=BOE-A-1999-15681*
12. *Ley 5/2011, de 29 de marzo, de Economía Social. (2011). BOE núm. 76, de 30/03/2011. https://www.boe.es/buscar/act.php?id=BOE-A-2011-5708*
13. *Loi n° 47-1775 du 10 septembre 1947 portant statut de la coopération. (1947). JORF n°0214 du 11 septembre 1947. https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000684004*
14. *Loi n° 2014-856 du 31 juillet 2014 relative à l'économie sociale et solidaire. JORF n°0176 du 1 août 2014.*

https://www.legifrance.gouv.fr/loda/id/JORFTEXT000029313296

15. *OECD. (2023). Recommendation of the Council on the Social and Solidarity Economy and Social Innovation. https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0472%20*
16. *United Nations General Assembly. (2023). Resolution adopted by the General Assembly on 18 April 2023. A/RES/77/281. https://docs.un.org/en/A/RES/77/281*
17. *United Nations General Assembly. (2024). Resolution adopted by the General Assembly on 19 December 2024. A/RES/79/213, 23 December 2024. https://documents.un.org/doc/undoc/gen/n24/417/48/pdf/n2441748.pdf*
18. *Zákon z 13. marca 2018, o sociálnej ekonomike a sociálnych podnikoch a o zmene a doplnení niektorých zákonov. 112/2018 Z. z. https://www.slov-lex.sk/ezbierky/pravne-predpisy/SK/ZZ/2018/112/*
19. *Zakon o socialnem podjetništvu. (2011). Uradni list RS, št. 20/11, 90/14 – ZDU-1I in 13/18. https://pisrs.si/pregledPredpisa?id=ZAKO6175*

Ivan Bosak
ORCID: https://orcid.org/0009-0000-7880-9043
Postgraduate Student
Lviv Polytechnic National University
Marta Danylovych-Kropyvnytska
ORCID: https://orcid.org/0000-0003-3963-5524
Ph.D., Associated Professor
Lviv Polytechnic National University
(Lviv, Ukraine)

PROBLEMS OF MANAGING INFORMATION SECURITY IN GOVERNMENT INSTITUTIONS

https://doi.org/10.5281/zenodo.15709868

Abstract
The research is dedicated to providing practical recommendations for improving the activities of government bodies in terms of their information and analytical work, as well as ensuring compliance with cybersecurity measures. Various approaches to defining information security are analyzed, and its types, subjects and objects, as well as threats and the system for ensuring the state's information security, are identified. Special attention is given to the problems arising within the information security system and proposed solutions to address them. Ensuring information security in the field of public administration is a relevant and important issue in the context of the state's overall information security.

Keywords: *public administration, government bodies, information security, cyber threats, cybersecurity.*

Introduction

In the context of the modern digitalized society, information security (IS) is the foundation for the functioning of government bodies. Information processes occupy a central role in shaping societal development in the 21st century. Therefore, the effectiveness of public administration processes directly depends on the protective capabilities of the state and the efficiency of information management systems.

The issues of information security continue to be highly relevant

today due to the significant increase in the role of storing, processing, and disseminating information, especially when making strategic, military, political, and economic decisions. In this context, an important question arises regarding how capable modern administrative systems are in facing the challenges posed by the external environment. The study of this topic is driven by the insufficient development of public administration issues related to the information security of the state and its individual components. Information security has become an integral part of the national defense strategy in the context of a full-scale invasion, as well as information and cyber warfare.

Materials and Methods

To solve the tasks set out in this work, the author used general scientific and specific scientific methods of cognition, in particular, dialectical, formal logical, induction and deduction, comparative legal and specific historical methods.

Modern Ukrainian security science contains a wide range of approaches to defining the concept of "information security", often using the terms "information security" and "information security" in parallel. Most well-known scholars are of the opinion that information security is primarily concerned with protecting the interests of various entities at different levels.

According to the Law of Ukraine "On Information", the subjects of information security include: individuals, legal entities, associations of citizens and public authorities (Pro informatsiiu, 1992). The Law of Ukraine "On Access to Public Information" defines the subjects as: requesters of information (individuals, legal entities, associations of citizens without the status of a legal entity, except for public authorities); information managers; structural unit or person responsible for information requests of information managers.

The objects of information security of Ukraine are: a person and a citizen; society and the state; information resources and information infrastructure – their integrity, accessibility and security (Pro dostup do publichnoi informatsii, 2011).

Results and Discussion

Government agencies are increasingly facing the challenges of managing information security, including cybersecurity. It is the public authorities that must have the most complete and up-to-date information support and analytical data processing systems during wartime, as they are under constant pressure from society, work under a total time crunch and make crucial management decisions. Over the past three years, the scope of activities and powers of these bodies has increased significantly, the level of decision-making has grown significantly, and the lack of resources has become even more apparent.

The full-scale war on the territory of our country has led to a change in the very paradigm of information security, the system of information content of the state authorities and its analytical component, and posed new challenges to the technical protection of information used by all state bodies without exception. A number of problems that existed even before the war in the information support of the public administration system, namely, insufficient digitalization, weak counteraction to cyberattacks, and vulnerability to disinformation, have not been overcome, but have only intensified since the outbreak of a full-scale war and significantly affect the entire system of national security in the state.

The first problem is the absence of specific information security programs in all government agencies without exception or their narrow focus on certain data or information. It should also be noted that there are no separately allocated resources to support information security programs and their successful implementation. The assets and operations of public authorities are becoming increasingly dependent on information and technology to achieve their mission and goals. Recognizing this dependence, information is becoming a strategic tool, and the protection of such information is becoming a top priority for the government. Achieving the mission requires the top management of any government institution to focus on effective information security and its ongoing maintenance, which requires the integration of information work into the strategic and day-to-day activities of the government.

Achieving compliance with information security regulations, standards and guidelines is imperative for an effective information

security program in every organization. Leaders in public administration must understand how to systematically recognize information security risks and take measures to manage them through an information security program. Information and information systems serve as a fundamental tool for the authorities to fulfill their primary purpose of serving the Ukrainian society and ensuring the confidentiality, integrity and availability of information.

Implementation of information security programs in government agencies suffers from a lack of resources – management understanding, time, money, and expertise. By understanding the benefits of achieving compliance goals, each institution can overcome these obstacles and realize the benefits achieved by implementing effective security practices.

The solution to the first problem lies in the fact that information and cybersecurity of public authorities at all levels is determined by a number of factors. All public authorities face the same challenges as citizens and businesses. Information and cyber threats can only be overcome by increasing the use of technical and human resources. In addition, there must be political will and legal compliance.

Despite some attempts at coordination by the Ministry of Digital Transformation, the digitization of administrations is carried out in accordance with the strategy of regions and local authorities. Due to this hierarchy in general, and in administrations in particular, efforts to ensure homogeneous and unified information security management at all levels of government do not lead to the desired results.

Compared to the private sector, administrations do not have very high requirements for the realization of IT goals, which is an inherent problem of the system. Public administrations are responsible not only for their own IT and the digitization of administrative services, but also for critical infrastructure in times of war.

Successful information security programs should be designed and adapted to the mission, goals and objectives of a particular government agency.

The next problem is the lack of technical support at the stages of development, implementation and modernization of information and analytical systems (IAS). The essence of this problem lies in the lack of technological capability and insecurity of information at all stages

– starting with the accumulation, storage, processing and provision of all information required by the executive body.

The solution to this problem should begin with changes in the organization of information support, regulatory and legal support, then in the transparency of administrative processes, the elimination of duplication of functions for individual authorities, later in the creation and implementation of a system of integrated indicators, and finally in the formation of centers of responsibility for the design and implementation of information and analytical systems of public administration.

In practice, management decisions made by public authorities are not always analytically well-developed and insufficiently justified in terms of legal and economic requirements. The level of information technology support for analytical activities, decision-making and preparation is extremely unsatisfactory. We also consider the level of system design of large information complexes to be inadequate.

The interest in information of decision makers in local self-government bodies is determined by the range of issues they address, but practice shows that the organization of effective information and analytical support is not limited to requests for information from above. Information and analytical activities in state and local governments are specific, an element of management systems and processes. Therefore, this activity is primarily applied, not theoretical, and the focus is on its efficiency and effectiveness, not on the depth and originality of problem formulation.

Given the wide variety of issues and limited resources, it is not possible to attract experts with a high degree of expertise in all areas. Therefore, it is important for governing bodies to have a list of external experts in various fields on hand. This means that the authority should have a person or organization responsible for formulating specialized tasks, organizing analytical research, selecting and coordinating experts, implementing expert procedures and methodologies, and presenting the results to decision makers.

The third problem is the growing number and variety of means of influence on information security, which can be divided into information, software and mathematical, physical, electronic, organizational and legal (Zaiarnyi, 2017).

Among researchers of administrative information security, the

most common view is that, given the non-property nature of information, its ability to be reproduced unlimitedly, lack of connection with a material carrier or direct owner, and the ability to change both in content and form, the most common type of punishment for administrative information offenses is property punishment, mainly fines (Zaiarnyi, 2017). The above statements are based on the provisions of the Criminal Code and the Code of Administrative Offenses, which provide for fines, confiscation of property and confiscation of illegally obtained profits as penalties for administrative information offenses: Article 27 of the Law of Ukraine "On Advertising", part two of Article 75 of the Law of Ukraine "On Telecommunications", Articles 41 and 43 of the Law of Ukraine "On State Regulation of Financial Services and Financial Services Markets", Article 41 of the Law of Ukraine "On Television and Radio Broadcasting".

As the most common measure of monetary administrative penalty, a fine is expressed mainly in the form of a non-taxable minimum income, but in practice, the stable and insignificant size of the calculation unit creates a discrepancy between the amount of the administrative penalty and the socially harmful nature of the administrative information offense. Minimum fines in such cases do not fulfill their main functions – preventive, punitive and educational (Zaiarnyi, 2014).

In this regard, we propose to replace the tax-free minimum income of citizens with the minimum wage established by law as the basic calculation unit of fines for administrative information offenses in the Code of Ukraine on Administrative Offenses, which has a scientific basis and is justified in practice.

The fourth problem is the state of cybersecurity of public authorities, which means the protection of vital interests and technological infrastructure of the public authority when using cyberspace to fulfill its duties, which ensures the sustainable development of the information society and e-government, timely detection, prevention and neutralization of real and potential threats to Ukraine's national security in cyberspace.

The main types of threats to the cybersecurity of public authorities are:

– hybrid aggression of the russian federation against Ukraine in

cyberspace;

– cybercrime;

– cyberattacks organized and sponsored by foreign governments (Ukaz Prezydenta Ukrainy, 2012).

The main cyber threats to officials of public authorities include:

– deleting, blocking or changing the official account of an official in social networks;

– deletion, interception or interference with the official e-mail of an official;

– intentional change of conditions and methods of authorization of an official in public registers, other information and telecommunication systems used to perform official duties;

– intentional alteration of information about an official by interfering with the work of public information and communication systems, social networks, etc.;

– forgery of keys of electronic trust services;

– disinformation in the virtual space about an official;

– cyber espionage against a specific official;

– unlawful processing of personal data about an official carried out in the virtual space.

The technical infrastructure of public administrations is an important basis for the provision of public services to citizens and society, and the information security of public administration should include all relevant aspects of cybersecurity.

To overcome the threats to cybersecurity of public authority objects, technological means of countering cyber threats should be developed, namely:

– specially created software;

– comprehensive information security system;

– multi-level authentication of users of public information resources;

– cloud services and data backup technologies;

– multi-component passwords and system login identifiers.

Organizational measures to counter cyber threats include:

– role-based distribution of access to public information resources in accordance with job responsibilities;

– maintaining an automated log of cyber incidents for each register and database;

– appointment of a responsible person or establishment of a separate structural unit for information security and technical protection of information;

– clear delineation of the functions of the owner and administrator of the information system, registry, database;

– ongoing training and professional development in cybersecurity and cyber hygiene;

– continuous improvement of the IT architecture of public information resources in accordance with existing and potential cyber threats.

Ukrainian public authorities and local self-government bodies face a number of objective factors that impede the improvement of their activities and complicate the implementation of information and analytical support tasks. These include, first and foremost, the unreliability and incompleteness of the information used by public authorities. This is due to insufficient resources for obtaining information and insufficient interaction between the authorities. Also, limited time for making management decisions, large amounts of information to be processed, multi-criteria decision-making, lack of digital skills and a culture of information use are serious obstacles on this path.

In order to overcome these contradictions, a unified information and analytical system should be developed, which should improve and integrate the information and analytical activities of public authorities and local self-government bodies, create conditions for ensuring their effective work using individual components, namely:

– communication environment;

– integrated electronic document management systems

– integrated information resource management systems;

– distributed technology management systems.

Therefore, the primary tasks in the direction of improving the information security (IS) of government bodies and institutions should be the following:

– integration of individual components of existing information and analytical systems of public authorities (local governments) into a single system as part of the future system of national information resources;

– ensuring information security of all participants in information

processes in the state by improving existing and developing new software tools for information protection (Mokhova & Lynova, 2018).

Conclusions

The current state of information security in public authorities and local governments in Ukraine is insufficient. The new level of requirements under martial law poses new challenges to government agencies, which have been added to the previous ones, such as the lack of a systematized information fund, a reliable analytical base, the ability to use information systems of external organizations, limited use of modern information retrieval systems, frequent intrusions into information systems for the purpose of distorting or stealing information, etc.

The information security of each state body is an individual issue that should be considered through the prism of its mission, compliance with the military, political and information threats facing the country as a whole and each public administration entity.

However, there are common features that are characteristic of all public law entities that carry out information activities in time of war. This is, first of all, the creation of at least a small, often one-person department responsible for information security, i.e., for providing data identification services, data management, network servers, data transmission and analysis via the Internet, e-mail, and cloud storage as a means of storing data and information.

In addition to legal aspects, the formation of an information security network for all government agencies has a purely practical purpose, namely:

– ensure the security and safe processing of data of citizens, government, and business;

– minimize cyberattacks and the risk of possible data fraud;

– prevent the leakage of information about the activities of state institutions to the enemies of the state who are waging a full-fledged war against Ukraine on the information front.

Ensuring information security in public administration is an urgent and important issue in the context of the state's information security. Therefore, an important recommendation is to introduce a unified system for ensuring information security in public

administration. Developed electronic document management systems exist in state authorities and local governments, but there is no unified electronic document management system in Ukraine.

References:

1. *Pro informatsiiu: Zakon Ukrainy. 1992. [About information: Law of Ukraine] Retrieved from https://zakon.rada.gov.ua/laws/show/2657-12#Text (2025, March, 05)*
2. *Pro dostup do publichnoi informatsii : Zakon Ukrainy. 2011. [On access to public information : Law of Ukraine] Retrieved from: http://zakon1. rada. gov. ua/cgi-bin/laws/main. cgi? nreg=2939-17. (2025, March, 10).*
3. *Zaiarnyi O.A. (2017) Pravove zabezpechennia rozvytku informatsiinoi sfery Ukrainy: administratyvno-deliktnyi aspekt [Legal support for the development of the information sphere of Ukraine: administrative and tort aspect]. Helvetica Publishing House [in Ukrainian].*
4. *Zaiarnyi O.A. (2014) Administratyvna karanist pravoporushen v informatsiinii sferi: deiaki problemy doktrynalnoho vyznachennia ta zakonodavchoho zabezpechennia. [Administrative Punishability of Offences in the Information Sphere: Some Problems of Doctrinal Definition and Legislative Support.] Administratyvne pravo i protses. № 2(8). 118. [in Ukrainian].*
5. *Ukaz Prezydenta Ukrainy Pro rishennia Rady natsionalnoi bezpeky i oborony Ukrainy vid 14 travnia 2021 roku "Pro Stratehiiu kiberbezpeky Ukrainy"[Decree of the President of Ukraine On the Decision of the National Security and Defense Council of Ukraine of May 14, 2021 "On the Cybersecurity Strategy of Ukraine"]. Retrieved from: https://zakon.rada.gov.ua/laws/show/447/2021 (accessed March 20, 2025).*
6. *Mokhova Yu. L., Lynova N. V. (2018) Informatsiino-analitychne zabezpechennia diialnosti orhaniv derzhavnoho upravlinnia. [Information and analytical support for the activities of public administration bodies] Publichne upravlinnia ta mytne administruvannia. 2 (19). http://customsadmin.umsf.in.ua/archive/ 2018/2/11.pdf. (accessed April 28, 2025).*

Irina Dulska
ORCID: https://orcid.org/0000-0002-2657-8375
Ph.D. in Economics, Senior Researcher
Institute for Economics and Forecasting of the NAS of Ukraine (Kiev, Ukraine)

INSTITUTIONAL PROBLEMS OF DIGITALIZATION IN UKRAINE DURING THE WAR AND EUROPEAN INTEGRATION

https://doi.org/10.5281/zenodo.15709877

Abstract
The study found that in the process of European integration, the institutional system of Ukraine is being transformed to meet the requirements of the EU, which contributes to the development of digitalization, a support ecosystem, and increased investment in the ICT sector. However, these processes should be accompanied by the building of civil society through decentralization, which has been slowed down in Ukraine as a result of the war. In the area of tax incentives in the EU, there are examples of more effective construction of a system for stimulating digitalization, which should be implemented in Ukraine.

Keywords: *digitalization, ICT sector, economic and social institutions, technological business, tax system, decentralization, territorial communities, regional executive authorities, local self-government.*

The structural incentives of a country's tax system can promote or hinder its technological growth. Thus, since the 1950s, Ireland has created an attractive and transparent business climate that has attracted significant investments from global HighTech companies in the technology business. Thanks to low corporate tax and developed general and digital infrastructure, Ireland is home to their European offices (Google, Facebook, LinkedIn, TikTok, 24 of the world's leading biotech and pharmaceutical companies – Johnson&Johnson, Pfizer, AstraZeneca).

The standard corporate income tax rate in Ireland is 12.5%, the lowest in the EU; for global corporations with annual revenues of more than €750m – 15%. IT companies in Ireland are entitled to a

tax credit for R&D up to 25% of expenses for companies with revenues of up to €750m, to use the tax credit and up to 30% on qualified R&D expenses (patents, copyrighted software, other intellectual property similar to an invention that can be patented). Dividends to non-residents are free from income tax. Startups, IT-SME have a tax holiday on corporate income for the first 3 years. This will help them, although Ireland has a high personal income tax (2024: VAT 23%, for the first €42k of income – 20%, for the rest of the income – 40%); The SME Support Program (in 2024 – for €257m), Digital Innovation Hubs, National AI Strategy, Programs for foreign investors supporting high-potential startups developing innovative products and services are in operation.

In Ukraine, which is under the influence of negative security factors as a result of the full-scale war against it by the Russian Federation (shelling, blackouts, damage to the energy infrastructure and telecommunications networks; demobilization of personnel, including HighTech companies, with limited reservation from conscription to the ranks of the Armed Forces of Ukraine and a complex procedure for its appointment, for your information, as of October 20, 2024, about 15-18k IT specialists are booked in Ukraine with all types of booking and criticality – Diia City residency, direct contracts with the Ministry of Defense, the total number of IT specialists in Ukraine is estimated at 330k), the income tax rate is 18% (5.5% higher than in Ireland). Although Ukraine has special taxation regimes for SMEs – a simplified taxation system, which allows individual entrepreneurs of the 3rd group to pay a single tax instead of a corporate tax. A special taxation regime for residents "Diia City", legal and tax space for IT companies, is in effect: 5% personal income tax, 22% – the rate of a single social contribution from the minimum wage and 1.5% military levy, 0% on the income of individuals on dividends accrued by a resident company, provided that they are paid once every 2 years. Ukraine is also developing technological and industrial parks with a set of benefits and advantages, accelerators such as UNIT.City, which provide opportunities for the development of startups, but their number and level of support, are inferior to those in Ireland. The main problems of startup development in Ukraine are security factors; demobilization of personnel, which can disrupt the implementation

of contracts; insufficient state support, lack of a favorable investment climate, outflow of new business abroad; most startups are high-tech, but not sufficiently experienced and organized in business processes, marketing, poorly analyze the market, and mistakenly form business models. This is illustrated by the dynamics of investment deals in startups: in IT, there was a decrease in investments in financing round A deals (the first large stage of attracting investments), in 2023 seed rounds (usually a fairly small amount of investment) increased by 37% year-on-year. Although the volume of seed investments became the second largest in the history of IT investments in Ukraine, which laid the foundation for the future recovery. Venture and institutional capital investments in the ICT sphere are recovering after falling from $832m in 2021 to $209m in 2023.

The ICT sector of Ukraine, despite the losses caused by the war, will be one of the drivers of post-war reconstruction in general, and especially of strategic sectors, which is due not so much to the stimulation of development by various institutions, although the ecosystem supporting the IT segment is developed, but to the phase of transition of the socio-economic system from post-industrial to neo-industrial. Currently, the ICT sector has developed into a multi-sectoral system, consisting of the following segments: **IT –** software development, quality testing, IT project management, IT design, interaction of developers with information technology services, system reliability engineering, data analytics, cybersecurity, etc.; **ICT in market infrastructure –** e-commerce, retail (in mass trade), FinTech (in finance, stock trading), Mar- and AdTech (in marketing and advertising); LegalTech (in law and compliance), InsurTech (in insurance), PropTech (in real estate), e-recruiting (in the labor market); **ICT in the real sector –** DeepTech (in industry, logistics, transport, services), AgTech, Precision Farming (in agriculture), FoodTech (in mass catering), GreenTech (in ecology), Smart City and Smart Home (smart city and home); **ICT in the creative segment –** audiovisual (digital television, film and post-production, streaming and hosting platforms, e- media and publishing), gambling (gambling, betting, gaming), e-sports, GemDev (computer game development), in culture, art, entertainment. **ICT in public administration and social sphere –** GovTech (in e-government), EdTech (in education), Med- and HealthTech (in medicine and

healthcare), PetTech (in pet care); ICT in the military-space sphere – DefensTech (defense sphere), SpaceTech (space sphere); **Digital infrastructure** – telecommunications networks of mobile and fixed Internet communication, including satellite, financial and payment infrastructure; **Data processing** – data centers (data processing centers), cloud storage, web portals, web nodes.

In Ukraine in 2023, the investment priorities were: EdTech – $85m (tutoring marketplaces, lecture platforms, foreign language learning applications, educational process management software), IT – $30m (software and solutions outsourcing), FinTech – $29m (blockchain auctions, car financing applications, accounting, etc.), retail – $21m (robotics; AI pricing; FoodTech), entertainment (AI voice cloning, assets and music, virtual reality), $29m – in other sectors (DefensTech, PropTech, HealthTech, MarTech). In 2024: $205m in IT (nocode solutions, AI for processing and automation of complex business operations), $51m in FinTech, $9.8m in PropTech, $5m in LegalTech, $5m in MedTech, $4m in SpaceTech, $3m in retail, $2.5 in FoodTech; in 2024-2025, the budget of the MDT increased from UAH 2.5 to UAH 4 billion. 60% of investments in IT startups were made by foreign investors, 27% – by Ukrainian investors.

By type of financing deals for IT companies in Ukraine in 2021-2023, the largest number are grant and venture investments at early stages (mostly product startups). Owners of IT companies are looking for quick money, so quick M&A deals are the mainstream in 2024-2025. In 2024, more M&A deals took place, since 2023 turned out to be a difficult year for IT companies, respectively, business founders are faced with the issue of survival and capitalization: to sell the company when it has passed its peak, thus capitalizing on all its resources created over the years; to retain employees and their own business with the opportunity to grow together with; to merge with a larger strategic partner in order to survive the turbulent period, thus becoming giants of the international market. Buyers are often large foreign companies that see the potential of the Ukrainian market and want to hire the best personnel in the field of software development. This is a buyer's market, so business sellers should be prepared for a positive deal with the maximum possible capitalization of their work. For now, we need to move forward with

stronger players. In the future, everything may change, and there will be an opportunity to buy out your shares.

Capital investments in the field of e-communications in 2024 amounted to UAH 25.1 billion (which is 32.7% more compared to 2023) - mobile service providers made significant investments in the modernization, restoration and expansion of network infrastructure, as well as strengthening the autonomy of their own networks. The Russian invasion has dealt a blow to the Ukrainian economy, forcing millions of people to flee the country as cities and infrastructure come under constant bombardment. The Kyiv School of Economics (KSE) estimates that Ukraine's losses from the war amount to $1.164 trillion. The KSE study estimated **indirect financial losses in the digital infrastructure and IT sector at $19.3b.** In addition to damaged infrastructure and lost revenue, Ukrainian telecommunications companies have suffered additional losses due to difficulties in the energy sector, when in March 2024 Russia intensified its shelling of Ukraine's energy infrastructure, leading to the shutdown of half of the country's generating capacity and regular long-term power outages for millions of people.

The largest telecommunications operator in Ukraine is Kyivstar, owned by Amsterdam-based VEON. Kyivstar and American investment firm Cohen Circle have announced a joint venture agreement aimed at listing Ukrainian digital operator Kyivstar on the Nasdaq stock exchange in the US. This M&A will make Kyivstar one of the first Ukrainian companies to be listed on a US stock exchange. Cohen Circle and VEON have committed to investing $1 billion in the country's development. VEON will continue to own a majority stake in Kyivstar, which will be listed on the stock exchange. Prior to the merger, VEON will reorganize Veon Holdings through a spin-off, as a result of which Veon Holdings will remain registered in the Netherlands and will own only Kyivstar and its subsidiaries, as well as certain other separate assets and liabilities.

In 2021-2022 (data for 2023 are not published by the State Statistics Service of Ukraine to ensure statistical confidentiality), 83.5-85.4% of employees in the IT sector worked as individual entrepreneurs. According to the National Income Strategy of Ukraine for 2024-2030, agreed with the IMF, the state plans to transfer employees from individual entrepreneurs to work on gig contracts

under the general taxation system, which should increase state budget revenue, but will reduce the income of employees. This should increase state budget revenue, but will reduce the income of employees, which may lead to consequences opposite to those expected by the state, as individual entrepreneurs may go into the shadows.

In addition to regular IT entrepreneurship with a clear form of taxation, mainly of individual entrepreneurs, to a lesser extent employed under less formalized gig contracts or with formal employment in IT companies, there is a large list of creative works on the Internet under the freelance system, which bring irregular income to creators. Orders for such works in Ukraine can be obtained on more than 100 online exchanges, job portals, on social networks, on freelance exchanges, from bloggers and entrepreneurs within the framework of formal employment and under minimally formalized gig contracts.

An established outsourcing ecosystem. For example, before the war the largest freelance service in Ukraine, the freelance exchange Freelancehunt, provided part-time or full-time employment to 25-40k freelancers per year and continues to work actively during the war. It offers 150-200 tasks per day in 11 categories in 128 areas of activity. This activity will grow, as Freelancehunt actively promotes the service to the markets of Europe, USA, Canada, Israel. The freelance market in Ukraine is one of the most stable niches, since performers fulfill orders remotely – they can do this even in conditions of relocation. Ukrainian freelancers are also actively entering foreign exchanges, such as Upwork or Fiverr. There are now more opportunities for them there, because both platforms have stopped working in the markets of the aggressor countries. Salaries of IT freelancers: up to $500 – 74.8%, up to $1k – 15.8%, $1-2k – 6.1%; $2-3k – 2.0%. Among specialists earning up to $500-1k, freelancing is not the main source of income for all. More than 50% have additional earning opportunities.

Groups of custom creative work: specialized functional freelance (IT tasks in the field of programming, task architecture and engineering, mobile applications, audio-video, administration, promotion, outsourcing and consulting, art and design, etc.; transcription, participation in online surveys, targeting, traffic

arbitrage, domain name resale, testing of sites and applications, online classes with children), sale of intellectual content (translation, publishing e-books, selling photos and videos, photo processing, creating podcasts and presentations, developing and selling PR materials, design development, developing mobile applications, online advertising on a blog, video editing, voiceover of video and audio content, writing music and audio effects, creating your own courses), work with content (typing, rewriting), work with sites (creating a site or video blog and promoting them; content management of sites, hosting links to affiliate programs for a percentage of their income, paid subscriptions to the site), work in social networks (creation, administration and development of communities (publics); SMM, administration of accounts in social networks), earnings on cryptocurrency (mining, trading), etc.

Ukrainians not only massively view video hosting services, social networks and messengers (YouTube, Google Play, App Store, Twitter, Instagram, Tik-Tok, Facebook, X, etc.), but also massively post their creative product on them, receiving income from monetization of views through paid subscriptions, donations, advertising, and affiliate programs. The most popular YouTube bloggers in Ukraine have a large income. The average blogger rating can earn up to $10k per month. According to the Digital 2024 Global Overview Report, at the beginning of 2024, 82% of Internet users in Ukraine used at least one social network, joining Telegram (71.3%, 26.2m), YouTube (66.2%, 24.3m), Facebook and TikTok (55% each, 20.2m), Viber (50%, 18.3me), Instagram (29.5%, 12.4m), X (12.2% or 4.5m), LinkedIn (13.6% / 5m people).

In this regard, a bill was registered in the parliament at the end of 2023, providing for the registration and taxation of irregular types of activities, which often include the types of creative activities listed above. It states the need to register a creator's account and declare the income that will be received on this account. If a person receives an annual income from irregular activities on the Internet less than 153 minimum wages, it will be taxed at a rate of 6%, the rest – personal income tax at 18%. The draft law has not been adopted as of the end of May 2025, but should be adopted in the near future.

In the case of creators receiving income via the Internet from foreign streaming and hosting services, Ukrainian tax legislation

sometimes does not coincide with foreign legislation. For example, in the Tax Code of Ukraine, royalties are defined as remuneration for granting the right to use an object of intellectual property rights. At the same time, it lists payments for the use of intellectual property that are not royalties, but their creators often receive such income through video hosting platforms or online exchanges from customers. In case of questions, Google recommends contacting its tax consultant. However, few Ukrainian creators have them, and institutions for legal assistance to authors in these cases have not been created, while the State Tax Service of Ukraine monitors the Internet in search of violators of tax legislation.

In 2025, the Government of Ukraine submitted a bill on taxation of persons who unofficially earn money through e-commerce, including on marketplaces, part of the European integration package of legislation – the Digital Platforms Initiative, agreement on combating tax evasion through digital platforms. It should simplify access to bank accounts, provide for the automatic exchange of tax information between countries, and access to data on the income of persons who sell goods and services through such platforms. The bill provides that a person who uses an online platform as a source of income must pay 5% personal income tax, 5% military duty; if the annual income is more than 5m UAH – 18%. International marketplaces will also be able to transfer data to Ukraine. However, DPI was signed by 29 countries: from the EU – Germany, Poland, Spain, the Netherlands, from the Americas – Canada, Argentina, Colombia, Costa Rica. The Ukrainian divisions of Bolt (Estonia), Glovo (Spain), Booking (Netherlands), OnlyFans (UK) fall under it. At the same time, YouTube, Google Play, App Store, Instagram, Facebook, X (USA) and Tik-Tok (China) do not fall under the scope of the draft law, therefore, it is necessary to adopt more general legislation on taxation of irregular income from all digital platforms, especially video platforms.

Given the potential of this sector of the economy to increase employment, increase their incomes and tax deductions, various institutions at their level can help in the development of the sector. For example, the state and local governments can introduce consulting hubs for gig entrepreneurs on tax issues, including irregular income, copyright, legislation on digital products and

markets, etc. This information is chaotically present on the Internet, but in this case, targeted assistance is needed.

The global scientific community has recognized the leading role of strong inclusive institutions of society, including local self-government, in determining the success of the development of the country and its regions through the awarding of the Nobel Prize in Economics for 2024 to the works of D. Acemoglu and J. Robinson. From this point of view, it is especially important to establish regional development management in Ukraine with constructive interaction between local governments (in Ukraine, EU – municipalities of cities and communes) and various levels of executive authorities (central – ministries and departments, and regional – state and military-civilian administrations (SA, MCA)), in particular in the field of digitalization of communities in the context of European integration reform and further decentralization, especially in regions remote from the front line. After all, local government is the closest institution of representative power to communities, accountable to the community and must meet its most urgent needs, and the effective implementation of ICT innovations, digitalization at the community level reorients their economy to higher technological systems, smart specialization, social existence – to democracy, transparency and inclusiveness, as forms of its territorial organization, more inherent in the EU approaches to local self-government, cohesion policy. And digitalization is necessary to provide high-quality medical, educational, social, administrative and other public services, ensure access to social security, which is relevant in war conditions, improve the level of cybersecurity and the functioning of critical infrastructure in general.

Main areas of digital development: digital goals of Ukraine and the EU, European Digital Decade, digital skills, digital transformation of business, digital infrastructure, digitalization of state and public services. The Ministry of Digital Transformation (MDT) is the main body of the system of central executive authorities, which ensures the formation and implementation of state policy in all areas of digitalization, which involves subordinating digital divisions of regional executive bodies to it and equal cooperation with local self-government bodies. However, since the beginning of the war, decentralization has objectively slowed down

and its development has followed mostly a mobilization / directive model, when the leading role belongs to the executive branch (MDT, SA) not only in matters of security and defense, including in the field of digitalization of communities. The European Commission emphasized this in the Report on Ukraine's progress in preparing for EU integration for 2023-2024.

In the Report on Ukraine's Readiness for EU Accession Negotiations of November 8, 2023, the European Commission noted that the territorial part of the decentralization reform has been completed; the local government community is a pillar of state resilience in mobilizing support from below, basic social services have been restarted, local government helps in organizing territorial defense, and receives internally displaced persons; there is limited progress in the main legislative documents on clarifying the role of local government and levels of local state administrations (SA) (regional, district) to delimit powers between the central and local levels; internal structures of municipal administrations have been introduced; fiscal decentralization has been maintained (in 2023, 64% of personal income tax (PIT) and PIT from military personnel were allocated to municipalities); Amendments have been made to the Law of Ukraine "On the Principles of State Regional Policy", which establish the basis for the restoration of affected regions, a three-level system of strategic planning (national, regional and local development strategies), etc.

Regarding the decentralization issues that need to be addressed, the European Commission noted that martial law has led to the creation of many military-civilian administrations at the local level; regional SAs play the main role in developing regional programs, in particular on digitalization, which threatens to remove local stakeholders from decision-making; the Congress of Local and Regional Authorities is an advisory body to the President of Ukraine and does not have the coordination powers established by law; certain local subsidies for delegated tasks have decreased, and centrally established exemptions from local taxes have not been compensated accordingly; budget transparency and openness of budget formation in Ukraine are limited, having worsened during martial law according to the Open Budget Index.

The European Commission's Report within the EU Enlargement

Package for Ukraine for 2024 emphasizes the need to improve public investment management for planning Ukraine's post-war economic recovery by identifying priority projects in sectoral packages and the Single Package of Projects, and aligning public investment at the local level with the principles of the European Charter of Local Self-Government. Progress in implementing the Digital Restoration EcoSystem for Accountable Management (DREAM), as part of the IT architecture supporting public investment management, has not led to the formation of a formal coordination system that ensures that local governments and their associations can fully participate in the development and implementation of post-war reconstruction policies.

In fact, the following model of cooperation between the executive and representative authorities at the regional level has developed: **a significant number of communities are proactive, on their own initiative involve businesses, civil society institutions, foreign institutions in the implementation of digitalization projects**, etc., that is, they do not need management or bureaucratic intermediaries in their activities. Thus, as of July 1, 2024, in all areas of regional development, 548 out of all 1,469 communities of Ukraine concluded 350 municipal cooperation agreements, 356 – 1,477 (+14 by 2023) international cooperation agreements with 64 countries of the world. Unfortunately, it is not known for certain in which sectors these projects were implemented. At the same time, some communities remain passive, and it is in these, and not in the above-mentioned case, that the CDTO (Chief Digital Transformation Officer) at SA should act. Without a doubt, the formation of a war and subsequently post-war society and economy would benefit from the synergy of partnership, rather than subordinate relationships between executive authorities and communities, as much as possible in force majeure circumstances of war. More flexibly combined branches of government (depending on how proactive the communities and the bureaucratized executive authorities are) in cooperation with business and foreign institutions will be able to work more productively in the field of digital transformation of communities to increase their institutional and financial capacity, investment attractiveness of the economies of communities, development of digital infrastructure, e-governance, e-democracy, social sphere, comfortable living conditions for the population,

digital transformation of business, etc.

This is also mentioned in the Ukraine Reconstruction Plan for 2024-2027, both in the field of ICT and in relation to strategic sectoral and cross-sectoral guidelines for post-war reconstruction under the EU Ukraine Investment Framework, Financial Support Program for Ukraine for €50b. However, as of May 2025, there is a failure to fulfill the schedule of reforms for the digitalization of sectors of the national economy and decentralization. Thus, in the first quarter of 2025, the parliament was supposed to make amendments to the Law of Ukraine "On Local State Administrations" and other legislative acts on the reform of the territorial organization of the executive branch in Ukraine, which should have come into force 12 months from the date of termination / abolition of martial law in Ukraine, subordinate regulatory legal acts for the implementation of the Law of Ukraine were adopted after its entry into force regarding the reformatting of SAs into prefecture-type bodies to organize a comparable system of ensuring legality in the activities of local self-government bodies, ensuring coordination of territorial bodies of central executive bodies in the implementation of state policy in the field. However, this was not done.

Reconstruction will take place in communities, so it is necessary to strengthen their institutional capacity, provide them with resources and tools for effective recovery and further development, strengthen the institutional capacity of regions through the economic, social, and environmental territorial development of communities. The prerequisites for this should be the active participation of the population in the management of communities, transparency and accountability of local governments through the use of e-democracy tools – "E-appeal", "E-petition", "E-consultation", "Participatory budget (public budget)", etc. (unfortunately, for security reasons, the State Statistics Service does not publish e-democracy statistics after 2020); creating conditions for comfortable living, self-realization, and development. The effect of these actions should be high-quality management of the post-war reconstruction process.

Budgetary decentralization is a common trend in EU countries. The effectiveness of the decentralization reform is undeniable for the Central European and Baltic countries, which began decentralizing the budget system back in the 1990s and later became EU members.

Ukraine began a systematic decentralization reform only a decade ago, and its results indicate the success of this vector. This process is still ongoing, and one of its main priorities remains increasing the level of financial capacity of communities, especially when, from October 1, 2023, personal income tax revenues of military personnel were redirected from the local to the state budget. Therefore, for local governments in Ukraine, increasing the fiscal significance of local taxes - the single tax and property tax (land and real estate), digitalization of tax administration, which will increase tax revenues to municipal budgets, comes to the fore.

In Ukraine, property registers still have significant gaps in information about real estate. As a result, community budgets lose a lot of money every year. Some communities themselves are trying to carry out an inventory of real estate in order to increase budget revenues. Although information is exchanged between the main state property registers, discrepancies arise between the information of the State Land Cadastre and paper deeds on the right to ownership of a land plot. Technical problems occur, which lead to the termination of the exchange of information between property registers. This prevents notarial and registration actions regarding real estate. The MTC should take care of filling the State Register of Real Rights to Real Estate, including by digitizing the archives of the Technical Inventory Bureau. As of 2023, the information deficit in this register was about 50%.

Conclusions

Ukraine should accelerate the harmonization of its institutions with the EU, in particular those responsible for the digitalization process. This will help accelerate the country's post-war reconstruction on higher technological levels.

References:

1. *Advantages that make Ireland a popular jurisdiction for opening offices and why we should learn from Ukraine. December 23. 2024. https://www.juscutum.com/news/irlandiya-yak-krayina-dlya-teh-biznesu*
2. *Yevgen Sysoyev. DealBook of Ukraine 2024 edition. Covering tech investment deals in Ukraine since 2014. AVentures Capital. July 2024. URL: https://www.slideshare.net/slideshow/dealbook-of-ukraine-2024-*

edition-report/270058911

3. *L. Palchynska. "Before the war, we provided work to up to 40,000 freelancers per year. We are not going to reduce the turnover now." How Freelancehunt works. ain.ua. 2022. 18 Mar. URL: https://ain.ua/2022/03/18/freelancehunt-v-umovah-viyny/*
4. *S. Kemp. Digital 2024 Global Overview Report. 31 jan. 2024. URL: https://datareportal.com/reports/digital-2024-global-overview-report (дата звернення: 05.03.2025)*
5. *D. Acemoglu, J. Robinson. "The Narrow Corridor. States, Societies, and the Fate of Freedom". 2020. 520 p. Our format.*
6. *Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. 2023. Comission Staff Working Document. SWD (2023). 699 final Report Communication on EU Enlargement policy. Ukraine. European Comission. Brussels, 8.11.2023. URL: https://neighbourhood-enlargement.ec.europa.eu/system/files/2023-11/SWD_2023_699%20Ukraine%20report.pdf*
7. *Law of Ukraine "On the Principles of State Regional Policy" dated 05.02.2015 No. 156-VIII. URL: https://zakon.rada.gov.ua/laws/show/156-19#Text*
8. *Ukraine 2024 Report Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions. 2024 Communication on EU enlargement policy. European Comission. URL: https://neighbourhood-enlargement.ec.europa.eu/document/download/1924a044-b30f-48a2-99c1-50edeac14da1_en?filename=Ukraine%20Report%202024.pdf*
9. *European Commission. План для реалізації Ukraine Facility 2024-2027. https://www.ukrainefacility.me.gov.ua/*
10. *K. Shvabiy, T. Bogdan, M. Dzhus, T. Koschuk, N. Novytska, M. Pasichny, I. Onyshchuk, Y. Ostryshchenko. Diagnostics of the local taxation system – analytical report. Growford Institute with the support of U-LEAD with Europe. 21.09.2023. URL: https://u-lead.org.ua/news/291*

Robert Jurczak
ORCID: https://orcid.org/0000-0002-0546-7385
dr hab., Faculty of Economics and Technology, prof. Academy of Applied Sciences in Konin (Konin, Poland)

CRITERIA FOR ENSURING THE FINANCIAL SECURITY OF POLISH AGRICULTURAL ENTERPRISES IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

https://doi.org/10.5281/zenodo.15709892

Abstract
The financial security of agricultural enterprises is a crucial factor in ensuring their long-term sustainability, particularly in the context of evolving environmental, economic, and social challenges. This study identifies key criteria for assessing and enhancing the financial security of Polish agricultural enterprises while aligning with sustainable development principles. Using a combination of financial analysis, expert assessments, and case studies, we propose a framework that integrates economic viability, risk management, and ecological sustainability. The findings suggest that diversification of income sources, access to EU subsidies, efficient cost management, and adoption of green technologies are critical for financial resilience. The study contributes to the literature by providing actionable insights for policymakers, financial institutions, and agribusiness managers to strengthen the financial stability of Poland's agricultural sector.

Keywords: *financial security, sustainable agriculture, economic viability, risk management, institutional support, Poland.*

Introduction

In recent decades, the agricultural sector has undergone significant transformation due to evolving economic, environmental, and social challenges. In Poland, agriculture remains a crucial component of the national economy, contributing not only to food security but also to rural development and employment. However, the sustainability and resilience of agricultural enterprises are increasingly threatened by climate change, market volatility, and

policy shifts within the European Union. Ensuring the financial security of agricultural enterprises is therefore a strategic priority that aligns with broader goals of sustainable development.

Financial security, in this context, refers to the ability of a farm to generate stable income, withstand external shocks, maintain liquidity, and invest in long-term growth. It is not merely a matter of profitability but also of structural soundness, responsible resource use, and risk management. In the framework of sustainable development, financial security must also support environmental stewardship and social cohesion, ensuring that agricultural activities today do not compromise the needs of future generations.

The European Green Deal and the Common Agricultural Policy (CAP) for 2023–2027 underscore the need for a transition towards greener and more resilient food systems. Polish agricultural enterprises are expected to adapt by adopting more sustainable practices, diversifying income sources, and optimizing the use of available financial tools and technologies. However, achieving these goals requires clearly defined criteria that can guide farm managers and policymakers in assessing and strengthening financial stability in a sustainable way.

The concept of financial security in agriculture has gained prominence in academic and policy discourse, particularly in the context of increasing global instability and the urgent need for sustainable development. Financial security is commonly understood as the ability of an agricultural enterprise to maintain solvency, liquidity, and profitability under changing internal and external conditions (Woloszyn, 2021). In Poland, where a significant share of agricultural activity is conducted by small and medium-sized family farms, ensuring financial stability is both an economic necessity and a socio-political imperative.

Numerous studies have addressed the financial performance of farms using classical economic indicators such as return on assets (ROA), return on equity (ROE), debt ratios, and net income (Szafraniec-Siluta et al., 2024). However, these metrics often fail to account for broader sustainability objectives, including environmental impact, social equity, and long-term resilience. As such, contemporary research increasingly calls for multidimensional approaches that integrate financial health with environmental and

social sustainability (FAO, 2018).

Ryś-Jurek (2024) proposes a unified measure of financial security for Polish farms, encompassing five key dimensions: property and capital relations, liquidity and debt, operational efficiency, financial effectiveness, and compliance with the golden balance sheet rule. This framework, based on FADN (Farm Accountancy Data Network) data, reveals that Polish farms, especially smaller ones, generally demonstrate stable financial conditions. However, the study emphasizes the need for continuous improvement, particularly in the areas of risk management and long-term investment.

From the perspective of sustainable development, literature underscores the importance of aligning financial decisions with environmental goals. Sustainable agriculture frameworks advocate for the integration of eco-efficiency, circular economy principles, and social inclusion into farm management (Bereżnicka, 2020). In Poland, initiatives such as the Sustainable Agriculture and Food Association (SAFA) promote financial literacy and resilience through training, advisory services, and access to tailored financial products.

Despite the growing body of research, there remains a lack of consensus on standardized criteria to assess the financial security of farms in the context of sustainability. Most existing models either prioritize economic indicators or treat sustainability factors as secondary. This gap indicates the need for more holistic evaluation tools that can capture the complex interdependencies between financial performance, environmental responsibility, and institutional support.

This review demonstrates that while foundational knowledge and analytical models exist, further research is needed to refine and integrate these elements into a cohesive framework applicable to the Polish context. The present study seeks to fill this gap by synthesizing economic, environmental, and policy-driven criteria into a structured model for assessing the financial security of Polish agricultural enterprises.

Materials and Methods

This study uses the methods of statistical and monographic studies of the activities of Polish agricultural enterprises (2020-2023), case studies of farms implementing sustainable development.

The study structured around the following main objectives:

– to propose a key criteria for ensuring the financial security of Polish agricultural enterprises in the categories of economic viability, risk management, sustainable practices, and institutional support;

– to analyse the current state of Polish agricultural enterprises based on the selected criteria.

The study combines:

– descriptive statistical analysis of financial data at the level of Polish agricultural enterprises;

– a policy and literature review to align the proposed criteria with the Sustainable Development Goals.

The data sources for the study are the Farm Accountancy Data Network (FADN). The dataset includes variables on income, assets, liabilities, subsidies, productivity and sustainability indicators.

Additional data sources include the Central Statistical Office of Poland (GUS); reports from the European Commission and the Polish Ministry of Agriculture; industry studies and assessments of the Common Agricultural Policy (CAP).

Result Research

Agriculture remains a key sector in Poland's economy. The financial security of Polish agricultural enterprises is a critical component of sustainable development, balancing economic viability with risk management and environmental stewardship.

The main problems of ensuring the financial security of Polish agricultural enterprises include climate risks (droughts, floods, and unpredictable weather patterns affecting yields), market volatility (price fluctuations for agricultural commodities, dependence on global markets), EU policy changes (Green Deal, CAP reform, eco-schemes), access to credit and insurance (smaller farms often lack access to affordable credit and comprehensive insurance products).

Pillars of financial security of Polish agricultural enterprises are as follows income stability (diversification of revenue streams, e.g., agritourism, bioenergy, organic farming), cost efficiency (adoption of precision farming, sustainable practices that reduce input use), access to Financial Instruments – subsidies (CAP payments, environmental program funding), credit facilities (preferential loans, EU-supported financial products), insurance schemes (crop insurance, livestock insurance, weather-index insurance).

Taking into account the above, we have defined the criteria for ensuring the financial security of Polish agricultural enterprises (Table 4.1).

Table 4.1

Key criteria for ensuring the financial security of Polish agricultural enterprises

Category	Criteria	Description	Relevance to Poland
Economic Viability	Profitability margins	Minimum 10% net profit margin to ensure reinvestment capacity.	High subsidy reliance requires efficient cost management.
	Income diversification	Mixed farming, agritourism, renewable energy to reduce market dependency.	Polish farms benefit from EU-funded rural diversification programs.
	Access to subsidies	Effective use of CAP direct payments and rural development funds (e.g., ARMA).	CAP subsidies account for ~40% of Polish farm incomes (GUS, 2023).
Risk Management	Price hedging	Futures contracts for commodities (e.g., wheat, milk).	Limited adoption; potential to reduce volatility in cereal / livestock sectors.
	Insurance coverage	Crop/livestock insurance (currently ≤30% penetration).	Climate risks (droughts/floods) necessitate higher uptake.
	Debt management	Debt-to-equity ratio <1:1 to avoid overleveraging.	Rising interest rates increase refinancing risks.
Sustainable Practices	Resource efficiency	Precision agriculture, drip irrigation, soil health monitoring.	Water scarcity in regions like Wielkopolska demands efficiency.
	Circular economy	Biogas from manure, agro-waste recycling.	Supports Poland's National Energy and Climate Plan.

	Carbon footprint reduction	Adoption of renewables (solar, wind) to access green financing.	Eligibility for EU Green Deal funds (e.g., Just Transition Mechanism).
Institutional Support	Government / EU Programs	Leveraging subsidies for modernization (e.g., "Young Farmer" scheme).	Poland allocated €25B in CAP 2023–2027 for sustainable investments.
	Banking sector engagement	Low-interest green loans for eco-friendly technologies.	PKO BP and BGK offer preferential loans for sustainable farms.
	Advisory services	Financial literacy programs for farmers.	Low digital literacy in smallholdings; extension services critical.

The information in the table below shows the subsidies are pivotal for Polish agricultural enterprises but must complement (not replace) market-driven profitability. Climate adaptation (insurance, resilient crops) is urgent due to increasing weather extremes in Polish agriculture. EU Green Deal alignment unlocks funding for sustainable transitions.

Detailed analysis conduct of each category and determine the impact on the financial security of Polish agricultural enterprises. In Table 4.2 contains information on economic viability of Polish agricultural enterprises.

Table 4.2

Economic viability analysis of Polish agricultural enterprises

Aspect	Key findings
Profitability margins	- Agricultural incomes per full-time farmer increased 2.5x since 2004, but remain 20% lower than non-agricultural sectors due to structural disparities (Poland Insight, 2025). - Agri-food exports surged to €51.8 billion in 2023 (10x pre-EU accession levels), driven by modernization and quality improvements (ForumforAg, 2024). - Inflation pressures (e.g., 32% food price rise in 2021–2024) and higher input costs (fertilizers, energy) squeeze margins, especially for small farms (Agroberichten Buitenland (2025).

Income diversification	- Dominant sectors: dairy, cereals, pigs, poultry, and horticulture (ForumforAg, 2024). - Small farms (75% of total): Limited diversification due to size constraints; rely on direct payments and niche markets (e.g., organic farming, which Poland aims to double by 2030) (ForumforAg, 2024). - Large farms (>50 ha): Better positioned for export-oriented diversification (e.g., high-value processed foods) (Poland Insight, 2025).
Access to subsidies	- CAP transfers to Poland: ~€78 billion since 2004, supporting modernization and income convergence (Poland Insight, 2025). - Current CAP (2023–2027): Focus on small/medium farms (<300 ha), organic production, and climate resilience (e.g., wetland protection) (ForumforAg, 2024). - Future CAP (2028–2034): Polish farmers demand budget stability, simplified measures, and continued two-pillar structure (direct payments + rural development) (Poland Insight, 2025). - Targeted subsidies: Livestock, protein crops, and vulnerable sectors receive additional support (ForumforAg, 2024).

An analysis of economic feasibility shows that the financial security of Polish agricultural enterprises was influenced by labor shortages (depleting Ukrainian migrant labor forces reliance on workers from Asia, raising costs), climate pressures (water deficits and soil degradation threaten long-term viability), regulatory burden (calls for deregulation, e.g., land lease rules, "active farmer" definition to improve competitiveness), fiscal constraints (OECD warns of deficit pressures) and geopolitical tensions (e.g., Ukraine grain imports).

Table 4.3 shows the results of risk management analysis of Polish agricultural enterprises.

The main challenges in the risk management system that affect the financial security of Polish agricultural enterprises include limited access to futures markets for small farms; mispricing risks due to financial speculation; insurance gaps (only ~30% of farms use insurance; high premiums for climate-related coverage); rising interest rates and input costs threaten loan repayment.

Table 4.3

Risk management analysis of Polish agricultural enterprises

Risk category	Key findings
Price hedging	- Price volatility: Polish agricultural markets (e.g., wheat, pork) are integrated with global prices, exposing farmers to fluctuations. Wheat prices are most strongly correlated with global trends, while livestock (beef/pork) show weaker integration. - Financialization risks: increasing influence of futures markets destabilizes price correlations with supply/demand, complicating long-term hedging. - Biofuel policies: rising oil prices amplify demand for crops like rapeseed, creating price pressures but also hedging opportunities through biofuel-linked contracts (Szczepańska-Przekota, 2023).
Insurance coverage	- Market growth: Poland's agricultural insurance market (€X billion by 2031) includes crop, livestock, and hail/storm policies, with subsidized options for farmers via government agencies (6Wresearch, 2025). - Key products: multi-peril crop insurance and revenue insurance dominate, but adoption is uneven due to cost barriers for small farms (6Wresearch, 2025). - Climate risks: hail & storm insurance uptake is rising, but coverage gaps persist for droughts and floods (ICLG, 2025). - Regulatory support: compulsory liability insurance for farmers and subsidies for livestock/poultry sectors mitigate some risks (ICLG, 2025).
Debt management	- EAFRD guarantees: Poland's €62.36M guarantee fund (2014–2020) leveraged €361.7M in loans, with pandemic-era revisions for working capital support (European Investment Bank, 2021). - CAP-backed loans: ARMA (Agency for Restructuring and Modernisation of Agriculture) disbursed ~€78B since 2004, improving liquidity for modernization (e.g., 862K machines purchased) (Agriculture Restructurisation and Modernisation Agency, 2025). - Challenges: high input costs (fertilizers, energy) strain debt repayment capacity, especially for smallholders (European Investment Bank, 2021).

In Table 4.4 contains information on sustainable practices (ecological sustainability) of Polish agricultural enterprises.

Table 4.4

Sustainable practices analysis of Polish agricultural enterprises

Category	Key findings
Resource efficiency	- Eco-efficiency: Polish farms could reduce inputs by ~24% without losing output, with larger farms (>50 ha) showing higher efficiency due to better input management (e.g., lower fertilizer use per production unit) (Gołaś et al., 2020). - Water & nutrient use: overuse of synthetic fertilizers (nitrogen/phosphorus) leads to significant surpluses, polluting water systems. Precision farming and organic amendments are recommended to improve efficiency (Gołaś et al., 2020). - Energy: fossil fuel dependence remains high, but renewable energy adoption (e.g., biogas from agro-waste) is growing in agro-industrial consortia like Farmutil (Kowalski & Makara, 2021).
Circular economy	- Waste valorization: farmutil consortium recycles 100% of meat waste into meat-bone meal (MBM) and biogas, creating closed-loop systems (Kowalski & Makara, 2021). - Agro-industrial symbiosis: collaborative models (e.g., between crop and livestock farms) optimize by-product use (e.g., manure for fertilizer) (Kowalski & Makara, 2021). - Barriers: small farms face challenges due to lack of technical skills and financing for circular practices (e.g., composting, bio-refineries) (Sustainable Agriculture & Food in Poland, 2021).
Carbon footprint reduction	- GHG emissions: Polish agriculture contributes ~11% of national emissions, primarily from livestock (enteric fermentation) and synthetic fertilizers (Gołaś et al., 2020). - Mitigation strategies: projects like the Sustainable Apple Initiative use tools (e.g., Cool Farm Tool) to track and reduce emissions via optimized fertilizer use and biodiversity enhancements (IDH, 2023). - Renewable energy: some large farms integrate solar/wind energy, but coal dependence persists in energy-intensive processing (Garbol & Ciechan-Kujawa, 2024).

The financial security of Polish agricultural enterprises in the context of sustainable development is characterised by the following challenges small farms (<8 ha) struggle with high input costs and low adoption of precision tech, limited consumer awareness and market demand for circular products (e.g., upcycled food), coal-dependent energy grid complicates decarbonization.

Table 4.5 shows the institutional support analysis of Polish agricultural enterprises.

Table 4.5

Institutional support analysis for Polish agricultural enterprises

Category	Key findings
Government / EU Programs	- CAP Strategic Plan (2023–2027): Poland allocates €78B for modernization, eco-schemes, and income stabilization, with 40% of funds targeting small/medium farms (<300 ha) (European Commission, 2025b). - National Recovery Plan (NRP): €1.4B dedicated to agriculture (2024–2026) for shortening supply chains, organic farming, and precision agriculture (e.g., water retention, Agri 4.0 tech) (Agroberichten Buitenland, 2024). - Crisis support: €39.3M allocated in 2023 to compensate cereal/oilseed farmers affected by Ukrainian imports, with national co-financing up to 200% (European Commission, 2023b).
Banking sector engagement	- BGŻ Bank (BNP Paribas Group): Leading agricultural financier since 1919, specializing in land purchases, irrigation, and livestock modernization. Offers tailored loans for EU CAP compliance and energy-efficient upgrades (BNP Paribas, 2025). - EAFRD Guarantee Fund: Leveraged €361.7M in loans (2014–2020) for working capital and equipment, with pandemic-era flexibility (European Commission, 2025b).
Advisory services	- Agricultural Advisory Centre (CDR): Centralized hub training 3,500 field advisors on CAP compliance, organic farming, and water management. Provides certified courses and innovation transfer (e.g., Agri 4.0) (Interreg, 2020). - Polish farm advisory and training centre: assists with RDP applications, business planning, and farm succession, targeting smallholders and young farmers (The Polish farm advisory and training centre, 2025).

	- New advisory models: piloting cross-cutting services (e.g., water retention) to address climate challenges, coordinated with regional ministries (Interreg, 2020).

The key challenges for institutional support in ensuring the financial security of Polish agricultural enterprises are complex application processes for small farms; uneven regional fund absorption; high input costs (fertilizers, energy) strain debt repayment capacity; fragmented water management policies across ministries hinder coordination.

Discussion

The findings from this study reveal the multidimensional nature of financial security in Polish agriculture and emphasize the growing need to align economic viability, risk management, institutional support with principles of sustainable development. Several key insights emerge from the analysis that are relevant to both farm-level decision-making and policy formulation.

A clear positive correlation was observed between farm size and financial security criteria scores, suggesting that economies of scale play a significant role in ensuring financial security. Larger Polish agricultural enterprises demonstrated better liquidity, asset structures, and access to financial tools, as well as higher operational efficiency. However, this raises equity concerns, as smaller farms – many of which are family-run – struggle to achieve financial independence and risk exclusion from modernization pathways. To address this disparity, tailored support mechanisms should be developed to strengthen the financial and organizational capacity of smallholders. These may include microcredit schemes, targeted investment grants, and cooperative models that enable collective access to technology and markets.

The results confirm the importance of the Common Agricultural Policy (CAP) in providing a financial safety net for Polish agricultural enterprises. However, the relatively low engagement with sustainability-linked rural development measures suggests that subsidies alone do not guarantee resilience or innovation. Polish agricultural enterprises that merely rely on direct payments often lack incentives to modernize or implement long-term strategies. Therefore, CAP instruments should increasingly reward sustainable

practices and financial planning. Expanding access to advisory services and simplifying the application process for eco-schemes could improve participation in sustainability-enhancing programs.

Despite EU efforts to green agriculture, the integration of environmental sustainability into farm-level financial decision-making remains limited. While over half of Polish agricultural enterprises had adopted individual sustainable practices, few had implemented comprehensive strategies that address soil health, biodiversity, and emissions holistically. This points to a need for better education and incentives related to sustainable farm management. Financial security must be viewed not only through profit and risk but also through the lens of long-term environmental stability. Climate-resilient farming, circular economy principles, and green financing should be incorporated into the core financial strategy of Polish agricultural enterprises.

Beyond institutional support, building internal financial capacity of Polish agricultural enterprises is essential to improving long-term security. Training programs, digital financial tools, and partnerships with banks or cooperatives can play a crucial role in equipping of Polish agricultural enterprises with the necessary skills and resources. These efforts must be adapted to regional and demographic differences, especially considering the aging farming population and the rural-urban knowledge gap.

Conclusion and Recommendations

This study set out to identify and evaluate the key criteria that define financial security for Polish agricultural enterprises within the broader context of sustainable development.

The results demonstrate that financial security of Polish agricultural enterprises cannot be understood solely through traditional economic metrics. Instead, it must incorporate economic viability, risk management, sustainable practices, institutional support, and the ability to adapt to evolving market and policy environments. While many Polish agricultural enterprises – particularly larger and better-capitalized ones – exhibit sound financial structures, a substantial portion remains vulnerable due to low liquidity, underinvestment, and overreliance on subsidies.

Sustainability efforts, though improving, remain fragmented and often disconnected from financial planning. Integration of

sustainable development principles into the financial strategies of Polish agricultural enterprises is therefore essential for long-term viability –not just economically, but environmentally and socially.

Several interconnected challenges threaten the financial security of Polish agricultural enterprises: low profitability – many farms operate with thin margins, making them vulnerable to market fluctuations and input cost increases; access to capital: small and medium-sized farms often struggle to access financing for innovation and sustainable practices. The indebtedness of Polish agricultural enterprises remains relatively low, which may indicate either conservative financial management or difficulty in obtaining credit. Transitioning to more sustainable agricultural methods often requires significant upfront investment that many farms cannot easily absorb. Price fluctuations for agricultural commodities create income instability, undermining long-term financial planning. The evolving Common Agricultural Policy and environmental regulations require continuous adaptation from Polish agricultural enterprises.

Based on the findings, the following recommendations for ensuring the financial security of Polish agricultural enterprises in the context of sustainable development are proposed:

1. For agricultural enterprises – develop long-term financial strategies: move beyond short-term budgeting and adopt strategic planning that includes investment, risk mitigation, and diversification. Implement holistic practices such as crop diversification, precision farming, and renewable energy use, which contribute to both financial and ecological stability.

2. For Policymakers and Government Institutions – increase the accessibility and attractiveness of eco-schemes and rural development programs by reducing bureaucracy and offering technical support. Design financial tools and grant schemes tailored to small and medium-sized farms to close the performance gap and reduce structural inequality. Encourage banks and credit institutions to offer preferential terms for environmentally sustainable investments.

3. For financial and advisory institutions – develop flexible credit products, insurance schemes, and savings tools that address the specific risks and cash flow patterns of agricultural enterprises. Offer integrated advisory support combining business planning, financial

management, and sustainability transitions.

Ensuring the financial security of Polish agricultural enterprises is a critical pillar of national food security and rural development. Embedding sustainability into financial decision-making is no longer optional – it is essential for creating resilient, competitive, and future-ready agricultural systems.

References:

1. *European Commission (2020a). Financial needs in the agriculture and agri-food sectors in Poland Retrieved from https://www.fi-compass.eu/sites/default/files/2021-03/Financial%20needs%20 agriculture_agrifood%20sectors_Poland_Executive%20summary.pdf*
2. *European Commission (2020b). The European Green Deal. Retrieved from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en*
3. *European Commission (2023a). The common agricultural policy at a glance. Retrieved from https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_en*
4. *European Commission (2023b). €100 million to support farmers from Bulgaria, Hungary, Poland, Romania and Slovakia. Retrieved from https://agriculture.ec.europa.eu/media/news/eu100-million-support-farmers-bulgaria-hungary-poland-romania-and-slovakia-2023-05-03_en*
5. *European Commission (2025a). Insurance and Risk Management Tools for Agriculture in the EU Retrieved from https://www.fi-compass.eu/ sites/default/files/publications/EAFRD_AGRI_Insurance_Risk_MA.pdf*
6. *European Commission (2025b). Poland – CAP Strategic Plan. Retrieved from https://agriculture.ec.europa.eu/cap-my-country/cap-strategic-plans/poland_en*
7. *FAO (2018). Sustainable food systems. Retrieved from https://openknowledge.fao.org/server/api/core/bitstreams/b620989c-407b-4caf-a152-f790f55fec71/content*
8. *FADN (2023). Statistics. Retrieved from https://fadn.pl/ publikacje/wyniki-standardowe-2/wyniki-standardowe-srednie-wazone*
9. *Ministry of Agriculture and Rural Development of Poland (2023). Statistics. Retrieved from http://admin.minrol.gov.pl/rolnictwo*
10. *Statistics Poland (2024) Agriculture. Retrieved from https://stat.gov.pl/en/topics/agriculture-forestry*
11. *UNDP (2025). Financial resilience in agriculture. Retrieved from https://irff.undp.org/projects/financial-resilience-agriculture*
12. *Bereżnicka, J. (2020). Financial security of farms in selected European*

Union countries in the context of environmental protection requirements, Annals PAAAE, Vol. XXII, No. (2). https://doi.org/10.5604/01.3001.0014.2362 11-20

13. *Garbol, J., & Ciechan-Kujawa, M. (2024). Circular Economy Models in Sustainability Reports of the Polish Electric Power Industry. Energies, 17(23), 6102. https://doi.org/10.3390/en17236102*
14. *Gołaś, M., Sulewski, P., Wąs, A., Kłoczko-Gajewska, A., & Pogodzińska, K. (2020). On the Way to Sustainable Agriculture – Eco-Efficiency of Polish Commercial Farms. Agriculture, 10(10), 438. https://doi.org/10.3390/agriculture10100438*
15. *Kowalski, Z., & Makara, A. (2021). The circular economy model used in the polish agro-food consortium: A case study. Journal of Cleaner Production, Vol. 284, 124751. https://doi.org/10.1016/j.jclepro.2020.124751*
16. *Ryś-Jurek, R. (2024). Financial security of Polish farms. Proposal for a unified measure, Village and Agriculture (Wieś i Rolnictwo), Polish Academy of Sciences (IRWiR PAN), Institute of Rural and Agricultural Development, Vol. 201(4). https://doi.org/10.22004/ag.econ.344910*
17. *Szafraniec-Siluta, E., Strzelecka, A., Ardan, R., & Zawadzka, D. (2024). Determinants of Financial Security of European Union Farms – a Factor Analysis Model Approach. Agriculture, 14(1), 119. https://doi.org/10.3390/agriculture14010119*
18. *Szczepańska-Przekota, A. (2023). Are Small Agricultural Markets Recipients of World Prices? The Case of Poland. Agriculture, 13(6), 1214. https://doi.org/10.3390/agriculture13061214*
19. *Woloszyn, A., Stanislawska, J., Głowicka-Woloszyn, R., Kozera, A., & Rosa, A. (2021). Multidimensional Assessment of Polish Farm Household Financial Security by TOPSIS and Generalised Distance Measure. European Research Studies Journal, Vol. XXIV, Iss. 4, Part 1, 534-553. https://doi.org/10.35808/ersj/2605*
20. *Poland Insight (2025). Work Underway on the Common Agricultural Policy for 2028–2034: Polish Farmers Seek Stability and Investment Support. Retrieved from https://polandinsight.com/work-underway-on-the-common-agricultural-policy-for-2028-2034-polish-farmers-seek-stability-and-investment-support-31279*
21. *ForumforAg (2024). 2024 – Poland – an agri-food sector with high performance and untapped potential. Retrieved from https://forumforag.com/article/2024-poland-introduction*
22. *Agroberichten Buitenland (2024). Funds from the National Recovery Plan for Polish agriculture. Retrieved from https://www.agroberichtenbuitenland.nl/actueel/nieuws/2024/03/10/funds-from-the-national-recovery-plan-for-polish-agriculture*

23. *Agroberichten Buitenland (2025). Key Insights from the OECD's Economic Survey of Poland: implications for the food and agricultural sector. Retrieved from https://www.agroberichtenbuitenland.nl/actueel/nieuws/2025/02/12/key-insights-from-the-oecds-economic-survey-of-poland-implications-for-the-food-and-agricultural-sector*
24. *6Wresearch (2025). Poland Agricultural Insurance Market Outlook. Retrieved from https://www.6wresearch.com/industry-report/poland-agricultural-insurance-market*
25. *ICLG (2025). Insurance & Reinsurance Laws and Regulations Poland 2025. Retrieved from https://iclg.com/practice-areas/insurance-and-reinsurance-laws-and-regulations/poland*
26. *European Investment Bank (2021). EAFRD guarantee fund for agriculture and agri-food businesses, Poland. Retrieved from https://www.fi-compass.eu/publication/case-studies/eafrd-guarantee-fund-agriculture-and-agri-food-businesses-poland*
27. *Agriculture Restructurisation and Modernisation Agency (2025). The 57th Conference of Directors of EU Paying Agencies. Retrieved from https://www.gov.pl/web/arimr-en/the-57th-conference-of-eu-paying-agency-directors*
28. *Sustainable Agriculture & Food in Poland (2021). Sustainable food in Poland. Retrieved from https://rolnictwozrownowazone.pl/wp-content/uploads/2021/08/Sustainable_food_in_Poland.pdf?utm_source=Raport+EN+pdf*
29. *IDH (2023). Polish farmers make first steps in improving sustainable farm practices on their apple farms. Retrieved from https://idh.org/news/polish-farmers-make-first-steps-in-improving-sustainable-farm-practices-on-their-apple-farms*
30. *BNP Paribas (2025). A century of BNP Paribas banking in Poland (2/3) : BGŻ, the Polish farming bank. Retrieved from https://histoire.bnpparibas/en/a-century-of-bnp-paribas-banking-in-poland-23-bgz-the-polish-farming-bank*
31. *Interreg Baltic Sea Region (2020). New types of agricultural advisory services in Poland. Retrieved from https://water-drive.eu/new-types-of-agricultural-advisory-services*
32. *The Polish farm advisory and training centre (2025). Agriculture. Advisory services. Retrieved from https://farm-advisory.eu/en*
33. *Bezpartochnyi, M., Britchenko, I., Bezpartochna, O. (2021). Ensuring the financial safety of Ukrainian agricultural enterprises in the context of export products and the impact on macroeconomic indicators. VUZF review. № 6 (3). 186-195. https://doi.org/10.38188/2534-9228.21.3.20*

Olena Karpii
ORCID: https://orcid.org/0000-0002-4133-1936
PhD in Economics, Assoc. Prof.
Marketing and Logistics Department
National University "Lviv Polytechnic"
Nataliia Mashchak
ORCID: https://orcid.org/0000-0002-0747-8352
PhD in Economics, Assoc. Prof.
Marketing and Logistics Department
National University "Lviv Polytechnic"
(Lviv, Ukraine)

MARKETING ACTIVITIES ROLE IN INCREASING BRAND AWARENESS OF CRAFT BEER COMPANY "UZVAR"

https://doi.org/10.5281/zenodo.15709902

Abstract
The implementation need of innovative and flexible management of business processes of Ukrainian enterprises in today's crisis conditions is emphasized. Marketing measures are considered as an effective tool for increasing brand awareness in order to maintain the company's position in the market. The state of beer development in Ukraine and the market position of the craft beer company "UZVAR" in it are studied. Marketing activities are developed to increase the awareness of the craft beer brand "2085" of the company "UZVAR", which will allow to increase the sales volumes of its products and increase the profitability level.

Keywords: *crisis conditions, craft beverages, brand awareness, marketing activities, investments, marketing communications*.

Introduction

The business environment in today's conditions is characterized by a rapid changes pace in development caused by new technologies, business processes globalization, increased competition in the markets of finished products and the influence of crisis conditions. The need to form an effective system of business process analytics and adapt Ukrainian enterprises to changing environmental conditions, taking into account the impact factors and the existing

potential of the business entity, is becoming increasingly relevant (Starets′kyy, 2024).

Regardless of the activity type, a business should invest in marketing activities that provide an opportunity to declare its brand, inform potential and existing consumers about the benefits and products characteristics, communicate with them and provide feedback. Investments in marketing efforts to increase brand awareness will provide an opportunity to increase sales volumes and fully load the enterprise production capacity. If a business does not effectively use modern marketing tools in its activities, then a drop in demand for products will cause a complete business stop. The basis for making informed and effective management decisions at the enterprise regarding investment areas and optimizing its activities are economic, mathematical and analytical methods. It is the results of the calculations that provide grounds for making certain decisions and assessing the correctness of their adoption (Hrytsenko, 2024).

Brand awareness is a significant advantage for companies, as it allows them to stand out in the market, create a solid reputation and form a loyal customer base. Brand awareness also has a positive impact on the consumer shopping experience, as it creates favorable conditions for a quick and easy choice of a favorite brand among those available on the market. Regular measurements of brand awareness will allow: to optimize the promotion strategy; to identify areas for improvement; to build trusting relationships with customers (Balakhovets′ka, 2023).

Materials and Methods

The various types impact of crisis phenomena on the activities and efficiency of Ukrainian business based on the analysis was carried out by the scientist Kryuchkova N.M. in the work (Kryuchkova, 2023).

The importance issue of an innovative approach to doing business in times of crisis was studied by the authors Orlova N.V., Vynnyk T.M. and Pobihun S.A., and they also developed practical recommendations for enterprises in Ukraine that want to increase their stability and efficiency in times of crisis and uncertainty in their work (Orlova et al., 2023).

The beer market analysis in Ukraine and trends in its

development was studied by Hirna O.B. and Kobylyukh O.Ya. in (Kobylyukh & Hirna, 2023). The authors also conducted research in the craft beer segment.

The process of brand management and its promotion through marketing activities was studied by the scientist Lyshenko M.O. in the work (Lyshenko, 2023).

Foreign scientists Kumaresan N. and Samydoss C. (Kumaresan & Samydoss, 2024) studied the concept of "brand awareness" and its impact on consumer decision-making processes and increasing sales of the company's products.

The impact of marketing activities on the brand awareness formation was studied by Garza M., Limon M., Tovar Ye. and Qalati S. in their work (Garza et al., 2024).

However, the conducted scientific research and generalizations are mainly theoretical in nature and there is an applied aspect lack of the effectiveness of implementing marketing activities in the activities of companies in order to increase its brand awareness.

When writing this section of the monograph, such research methods as generalization, comparative method, grouping method, and systematization method were used.

Results and Discussion

Undoubtedly, the logo, color palette and brand "voice" are the basis for brand recognition, but this is not enough in today's highly competitive market conditions. Even mega popular and successful brands do not stop working on their recognition. Marketing efforts to increase brand recognition should be focused where the largest part of the target audience is located. These can be both traditional promotion channels (radio advertising, event sponsorship, participation in fairs), and digital space – advertising in social networks, cooperation with influencers, etc.

"UZVAR" Ltd. is a company producing craft beer and fruit water and operates on the Ukrainian beer market under the trademark "2085". The craft beer market development in Ukraine in recent years has had complex dynamics. On the one hand, there has been an increase in alcohol consumption since the beginning of the full-scale invasion: according to the survey results by the Ukrainian Institute for the Future, the percentage of alcohol consumers increased by

28% (Yak zminyvsya psykhoemotsiynyy…). On the other hand, there is a tendency towards its decline, which is provoked by economic factors: inflation, exchange rate fluctuations, the high cost of craft beer, provoked by a corresponding increase in gas prices, higher electricity prices for enterprises, increased transportation tariffs, and sharp changes in the economic environment, which in general have significantly affected the cost component of craft beer producers.

In 2023, craft beer production volumes increased by 19% compared to the previous period and amounted to 44 million liters, but these volumes have not yet reached even the level of the pre-war period, not to mention the better pre-quarantine production volumes. According to experts, the beer production share by craft breweries in Ukraine is only 3,29%, compared to mass-produced beer, the share of which is 96,71% (Figure 4.1).

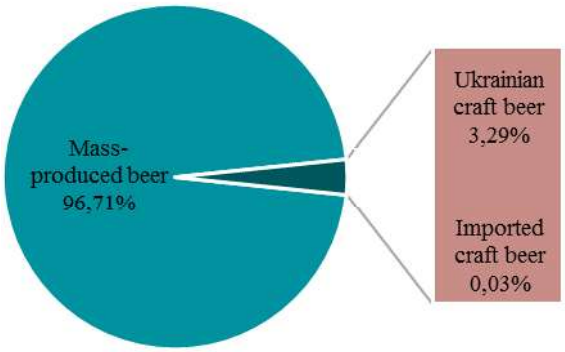


Figure 4.1 The beer market segmentation in Ukraine in 2023, %
Source: (Craft beer market in Ukraine and the EU, 2023)

The successful prosperity of the small enterprise "Uzvar" Ltd., whose market share is 2.41%, in the monopolized market will depend on its ability to increase the recognition of its brand "2085", to be innovative and to provide unique value propositions for its customers. Attracting investments is becoming a key element in ensuring its sustainable growth in crisis conditions.

Investments in marketing activities are crucial for increasing the recognition of the brand "2085" and increasing demand for craft

products, which will allow loading production capacities up to 100%. Within the framework of these investments, the following directions of marketing efforts to increase brand recognition can be proposed:

I. Presence in the infospace. According to the PlusOne agency, 17,3 million Ukrainians are users of the social network Instagram, and the average time they spend there is 140 minutes per day (more than 2 hours) (Vodyanyy, 2022). That is why this social network is an effective tool for contacting and communicating with your target audience through posting, reels, and stories. Currently, the brand profile "2085" has 7379 followers, which has the potential for growth.

Actively maintaining a brand page on Instagram involves engaging an SMM specialist and developing a content plan, as well as expanding the functionality of the profile itself (for example, adding saved stories with information about where to buy "2085" products, etc.) will increase brand awareness among the target audience. Setting up profile algorithms will allow you to effectively cover all the company's activities not only online, but also offline, reaching an increasingly wider target audience. In addition, it is advisable to constantly conduct SEO optimization of the website in order to increase its positions in search results for relevant queries. This optimization will increase website traffic, increase sales through the site and the number of conversions on it.

II. Cooperation with influencers. In continuation of measures to increase the "2085" brand awareness through the social network Instagram and increase the followers number of the brand page, it is worth involving opinion leaders in cooperation. For advertising, company can send a press pack with the most popular items of the "2085" brand product range and the concept of an advertising appeal, through which subscribers will be introduced to the brand history and features, the range, places where they can buy, etc. It is also advisable to hold a giveaway of the same press pack among subscribers (provided that they subscribe to the influencer's profile and the "2085" brand), which will increase their number on the brand page. At the cooperation time, the "2085" brand page on Instagram should be active, supplemented with informative posts and saved stories, and there should be a person in direct contact who is ready to respond to interested potential customers.

III. Collaborations. Cooperation with other brands will allow you to reach a new audience through the partner's customer base. This will also increase trust through the association of consumers with a well-known brand. For example, company can start cooperation with the delivery service "La Piets", represented in the following cities: Lviv, Stryi, Chernivtsi, Uzhgorod, Poltava, Ivano-Frankivsk, Vinnytsia, Rivne, Khmelnytskyi. In addition to the dishes offered by delivery (pizza, sushi, burgers and hot dogs), the list of drinks includes only beer from foreign manufacturers. Replacing imported beer with the "2085" brand will allow you to popularize the Ukrainian manufacturer and increase sales, since this delivery service is popular among the population.

IV. Participation in festivals and fairs. During the pandemic and the russian federation military invasion, the population of Ukraine began to demonstrate active demand for offline events with live communication and other activities outside the home. That is why street festivals and fairs, which were in demand even before the pandemic and war times, are gaining momentum. Among the offline events in which it is advisable for the "2085" brand to participate, the following can be distinguished:

– "KURAZH" – a Kyiv cultural and social event that combines: lectures, sales of Ukrainian brands, charitable goals, inclusive activities, musical accompaniment. Over 8 years of operation, the festival has been visited by more than 750 thousand visitors, 50 million UAH was collected for charitable purposes and 130 charitable projects were implemented.

– Lviv Farmers' Fair. Every year, starting in 2019, in April, a farmers' fair begins its work on Rynok Square in Lviv, which brings together local producers in order to promote and support local businesses. The fair is open every Saturday from 10 am to 4 pm.

– The Lviv Taste Fair is held annually in June on the territory of the Potocki Palace in the center of Lviv. Entrance to the fair is free for visitors, and the goal of the event is to introduce citizens and guests of the city to craft producers and farmers, to involve them in educational and entertaining master classes, and to popularize Ukrainian products. This year, more than 40 producers of organic, craft, and local products took part in the fair, and more than 2,000 people attended the event.

The participation of the “2085” brand in such events will allow it to reach an audience that does not use social networks, but will be able to learn about it offline. In addition, participation in festivals and fairs will strengthen the brand’s presence and recognition on social media, through the publication of content with brand tags by event visitors.

V. Charitable activities and support for the Armed Forces. Undoubtedly, Ukrainians can live a relatively normal life, go to work and study, attend various events and buy things only thanks to the Armed Forces, which repel and deter the enemy. Along with the purchasing behavior of Ukrainians, their values have also changed. Support for Ukrainian manufacturers, support for charitable projects and initiatives of businesses and NGOs, as well as a culture of canceling those business actions that contradict current values and priorities in the fight against the enemy – these are changes in the behavior of the Ukrainian consumer that businesses should take into account when developing their marketing communications and events. The “2085” brand should join a certain charitable collection to cover the needs of combat units or permanent collections from the Prytula foundation, Sternenko foundation, “Povernys zhivym” foundation, united24 platforms, etc. Since, according to the concept of the brand “2085” this is a beer imported from the future, and the dream of every Ukrainian is a future without russia, the brand should join in helping to destroy the enemy. The brand can announce on social networks and on the website that a certain amount from each unit of sale of its products will be directed to the selected charity or a separate unit of its choice.

In accordance with the above recommendations for marketing activities that will increase the awareness of the “2085” brand, a summary Table 4.6 was formed, which contains a list of activities and the expected result from the implementation of this activity by “Uzvar” Ltd. in its marketing activities.

The additional marketing activities use, such as advertising, public relations (PR), sales promotion and direct marketing, allows you to create areas for marketing efforts to increase brand awareness and an effective system for product promotion. An integrated approach ensures synergy between these tools: advertising contributes to the formation of wide recognition, PR helps to

Table 4.6

Summary table of marketing activities to increase the "2085" brand awareness

No.	Marketing activities	Expected result
1.	Presence in the information space: social media development and SEO optimization	Reaching the target audience of Instagram users Brand information resource for the buzz generation Effective communication with your target audience through posting, reels, and stories, as well as direct messages Covering offline brand activities on social media, reaching an ever-widening target audience Increase brand rankings in search results for relevant queries Increase website traffic, increase sales through the site and the conversions number on it
2.	Collaboration with influencers	Increase the number of followers on the brand page on the social network Instagram Increase the activity on the brand page (viewing stories, liking and sharing posts) Increase the traffic to the website Increase the trust in the brand through the prism of trust in the influencer
3.	Collaborations with other brands	Reaching a new audience through the partner's customer base Increasing brand trust through consumer association with a well-known brand Increasing sales
4.	Participation in fairs and festivals	Reaching an audience that is not on social media but is active offline Strengthening the brand's presence and awareness on social media by having event attendees post branded content.
5.	Charity	Growing consumer loyalty through shared values and priorities Helping to confront the enemy Reaching a new audience that does not attend previous events and communication channels Increasing activity on social networks at the time of the charity collection Increasing sales

strengthen the positive image of the brand, sales promotion encourages instant purchases, and direct marketing provides individual work with customers. Thanks to such marketing efforts integration, "UZVAR" Ltd. can significantly increase the sales of its craft products and increase the profitability level.

Conclusions

Having studied the features and problems of the activities "Uzvar" Ltd. and the concept of its brand "2085", the following directions for marketing activities were formed to increase brand awareness, which is a priority task in achieving an increase in sales volumes: presence in the infospace through the development of social networks, SEO optimization and cooperation with influencers; collaborations with other brands will allow you to reach a new audience, increase the level of trust; participation in fairs and festivals will allow you to reach an audience that is absent from social networks and have a double impact on the online audience, strengthening the position of the presence; charity will allow you to increase consumer loyalty, reach a new audience that is different from previous events, and increase activity on the social network page.

To increase "2085" brand awareness in a monopolized market, the company should rely on its strengths, using flexibility and creativity skills to further create products unique to the market. It is necessary to improve communication policy and distribution by investing in marketing activities. It is important to monitor changes in market trends in a timely manner, actively use new opportunities and diversify the product range to meet consumer needs, taking into account potential external threats and conditions of uncertainty in which Ukrainian business has been operating for almost 3 years.

References:

1. *Starets'kyy A.O. (2024). Klasyfikatsiya marketynhovykh stratehiy dlya zabezpechennya rozvytku biznes-struktur [Classification of marketing strategies to ensure the development of business structures]. Akademichni viziyi [Academic visions]. Vol. 36. https://doi.org/10.5281/zenodo.14165939 [in Ukrainian].*
2. *Hrytsenko Yu. (2024) Stavka na vpiznavanist'. Chomu investytsiyi v brend nadvazhlyvi [Betting on recognition. Why brand investments are*

crucial]. Retrieved from https://epravda.com.ua/columns/2024/05/28/714263/ [in Ukrainian].

3. *Balakhovets'ka I. (2023). Loyal'nist' ta vpiznavanist' yak klyuchovi pokaznyky doviry do brendu [Loyalty and recognition as key indicators of brand trust]. Retrieved from https://mmr.ua/show/loyalnist-ta-vpiznavanist-yak-klyuchovi-pokaznyky-doviry-do-brendu [in Ukrainian].*
4. *Kryuchkova N.M. (2023). Vplyv ekonomichnykh kryz na efektyvnist' ukrayins'koho biznesu: statystychnyy analiz pid chas retsesiy [The impact of economic crises on the efficiency of Ukrainian business: statistical analysis during recessions]. Akademichni viziyi [Academic visions]. Vol. 17. http://dx.doi.org/10.5281/zenodo.8277590 [in Ukrainian].*
5. *Orlova, N., Vynnyk, T. i Pobihun, S. (2023). Innovatsiyni stratehiyi rozvytku biznesu v umovakh kryzy: analiz i praktychna realizatsiya v Ukrayini [Economy and Society]. Ekonomika ta suspil'stvo, (56). https://doi.org/10.32782/2524-0072/2023-56-75 [in Ukrainian].*
6. *Kobylyukh O.YA., Hirna O.B. (2023). Suchasni trendy ta perspektyvy rozvytku rynku pyva v Ukrayini [Current trends and prospects for the development of the beer market in Ukraine]. Akademichni viziyi [Academic visions]. Vol. 24. http://dx.doi.org/10.5281/zenodo.10057533 [in Ukrainian].*
7. *Lyshenko, M. (2023). Brend-menedzhment yak instrument marketynhovoyi diyal'nosti pidpryyemstv [Brand management as a tool for marketing activities of enterprises]. Ekonomika ta suspil'stvo [Economy and Society], (48). https://doi.org/10.32782/2524-0072/2023-48-80 [in Ukrainian].*
8. *Kumaresan N., Samydoss C. (2024). Brand Awareness: Understanding its Role in Sales, Consumer Intentions, and Decision Making. International Journal of Scientific Research and Engineering Development, Vol. 7. DOI: 10.5281/zenodo.12247092*
9. *Garza M., Limon M., Tovar Ye., Qalati S. (2024). The impact of marketing activities on the formation of brand awareness, image and loyalty in social networks of a public higher education institution. Cogent business and management. https://doi.org/10.1080/23311975.2024.2318809*
10. *Yak zminyvsya psykhoemotsiynyy stan ukrayintsiv: zvit za rezul'tatamy onlayn-doslidzhennya [How the psycho-emotional state of Ukrainians has changed: a report based on the results of an online study]. Retrieved from https://news.uifuture.org/yak-zminivsya-psikhoemociyniy-stan-ukra/ [in Ukrainian].*
11. *Rynok kraftovoho pyva v Ukrayini ta YES: u 2023 rotsi vitchyznyane*

vyrobnytstvo zbil'shylosya na 19% [Craft beer market in Ukraine and the EU: domestic production increased by 19% in 2023]. Retrieved from https://pro-consulting.ua/ua/pressroom/rynok-kraftovogo-piva-v-ukraine-i-es-v-2023-godu-otechestvennoe-proizvodstvo-uvelichilos-na-19 [in Ukrainian].

12. *Vodyanyy A. (2022). Instagram vpershe obihnav Facebook za kil'kistyu korystuvachiv v Ukrayini [Instagram overtook Facebook for the first time in terms of the number of users in Ukraine]. Retrieved from https://lb.ua/economics/2022/01/20/503512_instagram_vpershe_obignav_facebook.html [in Ukrainian].*

Martin Pavlovič
ORCID: https://orcid.org/0000-0002-4187-8018
PhD in Agr. Econ., Full Professor at the University of Maribor, Faculty of Agriculture and Life sciences;
Project Manager at the Slovenian Institute of Hop Research and Brewing
Darija Trpin Švikart
ORCID: https://orcid.org/0000-0003-1326-0779
MSc in Agr. Econ., Lecturer at the University of Maribor, Faculty of Agriculture and Life sciences
(Hoče, Žalec, Slovenia)

ASSESSMENT OF PRODUCTION ECONOMICS ON HOP INDUSTRY FARMS

https://doi.org/10.5281/zenodo.15709908

Abstract
Hops are international trading commodity in the agricultural market. As per supply of hops - Slovenia is positioned in 2025 as the 5th country on a global hop market. Farmers may acquire accurate estimate of production costs and gross margin (EUR/ha) by participating on workshops for benchmarking of economics at farm level. On workshops in February 2025 input data about cultivation technology and production costs as well as revenues related to production and marketing of hops were analyzed from 10 farms for the 2024 and 2023 growing seasons. In the research we illustrate the following three key economic parameters related to competitive value of hop farms analyzed for both years. The average group revenue amounted 10,463 EUR/ha and 8,993 EUR/ha, the average group variable costs were assessed as 6,476 EUR/ha and 6,317 EUR/ha and the average gross margin was calculated as 4,169 EUR/ha and 3,348 EUR/ha. Results illustrate also average group and farms' individual data on yields and hop price as well as major cost groups related to farms analyzed within the benchmarking evaluation. The included farmers acknowledged benefits and have thus accepted for the fourth time (since 2021) the presented method of a group assessment of hop production economics at farms level.

Keywords: *hop industry, farms, costs analysis, gross margin, model PKH, benchmarking workshops, Slovenia.*

Introduction

Analytical monitoring and verification of business performance is essential for effective management and planning of farm development. Existing reference sources in the field of model assessment of agricultural production economics include a wide variety of agricultural policies. The latest printed copy of the Catalogue of Calculations for Planning Farm Management in Slovenia was produced by agricultural consultants and specialists in agricultural economics at the Chamber of Agriculture and Forestry of Slovenia in 2011. It includes model calculations of coverage for the purpose of applications for public tenders within the framework of the Rural Development Programme 2014-2020. The catalogue was later upgraded with the online application of the agricultural production planning programme Farm Manager.

The economic efficiency of agricultural production is determined by (a) the yield, (b) the price achieved and (c) payments from CAP measures/subsidies on the revenue side, and (d) production costs on the expenditure side. For hop growing, a capital and labor-intensive industry, the model calculation method of total production costs is more appropriate than the calculation method of gross margin (Pavlovič, 2014). For a more comprehensive overview of the economic competitiveness of hop farms, it is necessary to consider also farms' other economic activities, which is not the subject of this paper.

A farm can obtain accurate estimate of the revenues and costs of a sector production by participating on the so-called workshops for benchmarking of production economics at farm level. These workshops represent a form of group advisory work in agriculture (Žgajnar et al., 2023). Market-oriented farms, ready to cooperate and exchange their own experiences, can voluntarily join the industry circle. Agricultural economists from research and advisory institutions participate in managing the work at benchmarking workshops and processing the data. Such benchmarking workshops in dairy farming have the longest tradition in Slovenia. In 2021, so called "sector/industry gropus/circles" (panožni krožki) in fruit growing and hop growing have also been introduced. We economically evaluated the hop production technology using the model – by analyzing farms' revenue, variable costs and gross

margin.

Hops are international trading commodity in the agricultural market. Their potent bitterness and pungent flavor ensured the limited market for hops. Beer production remains the only market requiring hops in significant since breweries consume 98% of global hop production (Cooberg and Hintermeier, 2012). There are other products that use hops in very small quantities. Teas, pillows and other sleep aids made with hops exist as homeopathic remedies around the world in amount of around 2%. However, none of these products require enough hops to affect the supply produced in a meaningful way (MacKinnon and Pavlovič, 2019). In November 2021, North American and European countries produced 89.78 percent of total IHGC-tracked production in 2020 and reportedly accounted for 91.78 percent in 2021. The largest hop producing countries, the U.S. and Germany, dominate the global market. U.S. and German production alone were responsible for 76.74 percent in 2020 and an estimated 77.20 percent in 2021. As per supply of hops – Slovenia is positioned as the 5th on a global hop market (IHGC, 2025).



Figure 4.2 Manual for Benchmarking workshops for farmers, analyzing their economic parameters at farm level

Materials and Methods

In the research, we used the economic analysis model of hop production from the so-called hop industry circle (PKH). We compared the technological and economic data of the 10 hop farms with the data of the calculated group average from PKH. For the participating Slovenian farms, we used data for the 2024 and 2023 growing seasons from two workshops, which took place in February 2025.

Model PKH for assessment of economics at farm level

The model is based on the revenue inputs, analysis of variable production costs and the calculation of the gross margin (EUR/ha) of hop production. The model PKH offers pre-prepared standard input data for material, machine and energy costs – to be updated by farmers if needed, while the remaining data is completed by the hop growers themselves based on their notes and estimates (Pavlovič et al., 2024). The model has six worksheets.

1. To enter basic data about the hop production farm, year of data processing, agricultural land in use, hop field areas, variety structure and number of employees on the farm.
2. To input data of variable costs (costs of materials, hired labor and energy in hop production).
3. To input revenues from (i) hop sales, (ii) potential insurance compensation for natural disasters and (iii) CAP (Common Agricultural Policy) subsidies related to a hop industry at farm level.
4. To calculate the variable costs of using machines and attachments in hop production.
5. The model PKH offers a calculation of the costs of hop production for the farm in the production year analyzed. The entire calculation with revenues, variable costs and gross margin is shown, which illustrates the economics of production. This calculation is then the basis for reviewing the data in the second, workshop with the same participating farmers.

To link data between different farms participating in workshops. The data is arranged in columns, where each farm obtains a code (CE1... CE10), which hop growers then use to identify themselves when interpreting the results of the model analysis of the participating farms.



Figure 4.3 Model PKH for assessment of hop industry economics at farm level

Source: https://www.ihps.si/wp-content/uploads/2023/08/Model-PKH-2025.xlsx

Structure and location of farms

Slovenian hop farms that participated in benchmarking workshops in 2025 are multi-generational family farms with a long tradition of hop production. The farms are located in the Styrian growing region. The specific combination of the subalpine climate and soil enables the production of aromatic hop varieties with a worldwide reputation with the PGI 'Styrian hops' designation.

The farms are highly specialized in high-quality hop production. The average number of full-time workers is 1.83, and family members often help with farm work.

The participating members grow various varieties of hops on their farms at their own choice, but Slovenian varieties predominate, which are: Aurora, Bobek, Celeia, Savinjski Golding, Styrian Wolf. Most of the hop fields are irrigated or have the possibility of irrigation. Hop growers have their own harvesting halls for harvesting the crop. All participating farms have a long tradition, as they are led by the fourth or fifth generation. The members use

modern machines, tools and mechanization in their work and thus strive to develop their farms. It is characteristic of hop farms that, in addition to hop growing, they also engage in livestock farming or some other agricultural branch, which also applies to the majority of the participating farms in the hop industry circle.

Workshops and processing of input data

A group of 10 hop growers participated in the research at the workshops held in 2025. At the first workshop, each hop grower had his own computer with a pre-prepared file with a model PKH for entering data from his own farm. Together, the farmers had entered their own technological and economic data on the revenues and expenses of hop production into the model in a guided manner (Pavlovič et al., 2025).

The workshop was followed by the analyzing of all data from the files of individual farms. The correctness of the data was checked and the farms were coded (CE1...CE10). This was followed by a comparative analysis of the input data with an illustration of the cumulatively calculated average values according to the selected model items. In case of excessive deviation, the data were excluded from the calculation of the average.

The second workshop was intended primarily for the presentation of data from individual farms – in comparison with the average values of the group and a discussion of the results obtained. This was followed by an exchange of opinions and a group debate. Participating hop growers looked for reasons for both poor and good results. They shared their experiences on how to improve practices on other farms.

Experts in hop industry and economics played a key role in a debate with intention to improve economics of farms.

Results and Discussion

In a results discussion we point out (as illustrated in the tables below) the following three key economic parameters related to competitive value of hop farms analyzed for the growing seasons 2024 (Table 4.7) and 2023 (Table 4.8):

A. The average group **revenue** amounted 10,463 EUR/ha and 8,993 EUR/ha,

B. the average group **variable costs** were assessed as 6,476 EUR/ha and 6,317 EUR/ha and
C. the average **gross margin** was calculated as 4,169 EUR/ha and 3,348 EUR/ha.

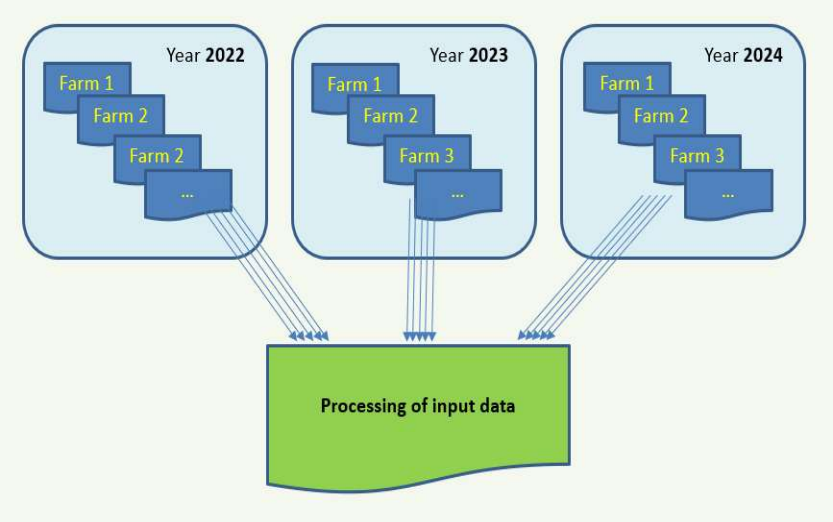


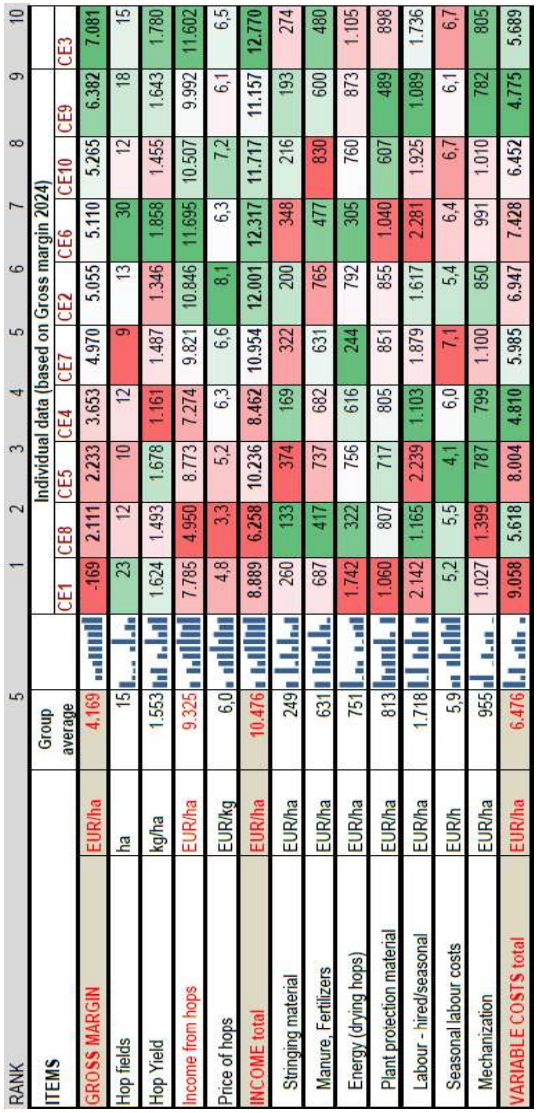
Figure 4.4 System links of Excel files



Figure 4.5 Benchmarking workshops participants, farmers who shared their hop production input data and model results

Table 4.7

Benchmarking workshop results of the economic assessment of hop industry farms for the year 2024



RANK			5	1	2	3	4	5	6	7	8	9	10
ITEMS		Group average		Individual data (based on Gross margin 2024)									
				CE1	CE8	CE5	CE4	CE7	CE2	CE6	CE10	CE9	CE3
GROSS MARGIN	EUR/ha	4.169		169	2.111	2.233	3.653	4.970	5.055	5.110	5.265	6.382	7.081
Hop fields	ha	15		23	12	10	12	9	13	30	12	18	15
Hop Yield	kg/ha	1.553		1.624	1.493	1.678	1.161	1.487	1.346	1.858	1.455	1.643	1.780
Income from hops	EUR/ha	9.325		7.785	4.950	8.773	7.274	9.821	10.846	11.695	10.507	9.992	11.602
Price of hops	EUR/kg	6,0		4,8	3,3	5,2	6,3	6,6	8,1	6,3	7,2	6,1	6,5
INCOME total	EUR/ha	10.476		8.889	6.258	10.236	8.462	10.954	12.001	12.317	11.717	11.157	12.770
Stringing material	EUR/ha	249		260	133	374	169	322	200	348	216	193	274
Manure, Fertilizers	EUR/ha	631		687	417	737	682	631	765	477	830	600	480
Energy (drying hops)	EUR/ha	751		1.742	322	756	616	244	792	305	760	873	1.105
Plant projection material	EUR/ha	813		1.060	807	717	805	851	855	1.040	607	489	898
Labour - hired/seasonal	EUR/ha	1.718		2.142	1.165	2.239	1.103	1.879	1.617	2.281	1.925	1.089	1.736
Seasonal labour costs	EUR/h	5,9		5,2	5,5	4,1	6,0	7,1	5,4	6,4	6,7	6,1	6,7
Mechanization	EUR/ha	955		1.027	1.399	787	799	1.100	850	991	1.010	782	805
VARIABLE COSTS total	EUR/ha	6.476		9.058	5.618	8.004	4.810	5.985	6.947	7.428	6.452	4.775	5.689

Furthermore, in Table 4.7 for example – research results illustrate

also average group and farms' individual data from farms coded from CE1 till CE10. Summarized, the model PKH illustrated information on average output data on acreage (15 ha), hop yield (1,553 kg/ha) and hop price (6.04 EUR/kg) as well as major hop production variable cost groups such as stringing material (249 EUR/ha), manure and fertilizers (631 EUR/ha), energy for drying hops (751 EUR/ha), plant protection material (813 EU/ha), hired seasonal labor (1,718 EUR/ha) and mechanization (955 EUR/ha)) related to farms analyzed within the benchmarking workshop evaluation.

The tables with workshops benchmarking results are also intended to determine whether the reason for the above-average successful farm in terms of gross margin (EUR/ha) is the highest yield and the highest selling price of hops. If we compare the data of all farms analyzed, we can see that one farm may have the highest gross margin as the sum of average variable costs, above-average hop yield and slightly above-average selling price of hops. We may find out that the farm that is most successful in terms of gross margin may not necessarily have the highest yield per hectare and the highest selling price of hops. The level of variable costs counts and plays a key role as well.

The included farmers acknowledged benefits and have thus accepted for the fourth time (since 2021) the presented methodological approach of a group assessment of hop production economics at farms level.

Conclusions

The benefits of the camaraderie and freedom to participate in workshops and to discuss the issues of the production technique and economics in a hop industry, whatever they may be, far outweigh the costs and limitations of such workshop activities. The workshop participants approved benefits and have thus accepted for the fourth time (since 2021) the method of a group assessment of hop production economics at farms level – in original Slovenian called as "panožni krožek v hmeljarstvu".

In fact, the greater the understand by workshop members about their associates and their situation in the global market creates a more cohesive national sector industry. It increases awareness of

Table 4.8

Benchmarking workshop results of the economic assessment of hop industry farms for the year 2023

RANK		5		1	2	3	4	5	6	7	8	9
ITEMS		Group average		Individual data (based on Gross margin 2023)								
				CE9	CE5	CE1	CE3	CE4	CE7	CE8	CE2	CE6
GROSS MARGIN	EUR/ha	3.348		-2.069	272	1.594	2.133	3.873	4.115	6.171	6.616	7.431
Hop fields	ha	15,43		18,79	12,19	25,73	15,41	12,05	9,60	11,56	13,50	20,03
Hop Yield	kg/ha	1.492		2.276	1.814	1.131	949	975	1.576	1.468	1.400	1.841
Income from hops	EUR/ha	7.925		3.568	6.989	7.113	6.952	6.404	8.731	8.132	11.519	11.917
Price of hops	EUR/kg	5,71		1,57	3,85	6,29	7,33	6,57	5,54	5,54	8,23	6,47
INCOME total	EUR/ha	8.993		4.593	7.642	8.299	8.071	7.673	9.882	9.261	12.716	12.803
Stringing material	EUR/ha	253		211	379	216	157	274	341	133	203	359
Manure, Fertilizers	EUR/ha	701		707	955	1.062	956	145	673	417	951	440
Energy (drying hops)	EUR/ha	714		1.794	675	1.217	681	473	297	322	681	290
Plant protection material	EUR/ha	828		679	481	688	1.142	762	816	703	1.055	1.128
Labour - hired/seasonal	EUR/ha	1.652		1.663	2.247	2.092	1.168	686	1.622	1.066	2.243	2.082
Seasonal labour costs	EUR/h	6,09		9,60	4,22	7,72	6,75	3,40	6,00	5,35	6,35	5,42
Mechanization	EUR/ha	715		796	474	778	636	797	929	491	764	775
VARIABLE COSTS total	EUR/ha	6.317		6.662	7.370	8.620	5.938	3.801	5.767	4.301	8.212	6.182

members regarding the global market situation of the day (macro-economic) as well as at their farm level (micro-economic) providing information to which they may not otherwise have access so they may act and respond should they so choose.

Acknowledgements

The authors appreciate the project EIP FARM MANAGER (https://www.kgzs-ms.si/program-razvoja-podezelja/podpora-za-pilotne-projekte-ter-za-razvoj-novih-proizvodov-praks-procesov-in-tehnologij/razvoj-sodobnih-analiticnih-sistemov-v-podporo-svetovanju-na-kmetijah-z-razvojem-empiricno-podprtih-panoznih-krozkov-in-razvojem-racunalniskega-sistema-za-poslovno-odlocanje-na-kmetijah/) and the project EIP EKOHMELJ (https://www.ihps.si/hmeljarstvo/eip-ekohmelj/) teams as well as the European Agricultural Fund for Rural Development and the Republic of Slovenia for financing the projects.

References:

1. *Cooberg H., Hintermeier P. (2012): Market report April 2012. Working paper. Nürnberg, Germany, Economic Committee of the International Hop Growers' Convention. Deutscher Hopfenwirtschaftsverband e.V. Available at: http://www.hmelj-giz.si/ihgc/doc/2012 NOV IHGC Hop Market Re¬port.pdf (accessed May 23, 2025).*
2. *IHGC. (2025): International Hop Growers Conven¬tion, IHGC. Available at https://www.ihgc.org/wp-content/uploads/2025_05_IHGC_CountryReports.pdf (accessed May 27, 2025).*
3. *MacKinnon D., Pavlovič M. (2019): Global hop market analy¬sis within the International Hop Growers' Convention. Slovenian Institute of Hop Research and Brewing. Hop Bulletin, 26: 99-108.*
4. *Pavlovič M. (2014): Hop Industry - Quality Management, Decision Support Modelling. Verlag Dr. Kovač, Hamburg, ISBN 978-3-8300-7537-0, 103 p.*
5. *Pavlovič M., Trpin Švikart D., Avberšek M., Dimec, B., Jerič, D. (2024). Model PKH for assessment of hop industry economics at farm level. https://www.ihps.si/wp-content/uploads/2023/08/Model-PKH-2025.xlsx (accessed May 20, 2025).*
6. *Pavlovič, M, Avberšek, M., Dimec, B., Jerič, D. (2025). Ocena stroškov pridelave hmelja kmetij v panožnem krožku. Hmeljarske informacije,*

letn. 42, št. 2, str. 6-7. ISSN 2536-2062. https://www.ihps.si/wp-content/uploads/2025/04/HMI-2-2025.pdf (accessed May 25, 2025).

7. *Žgajnar, J., Tomšič, M., Kavčič, S., Pavlovič, M., Jerič, D., Čop, T., (2023). Priročnik za izvajanje empirično podprtih panožnih krožkov. Ljubljana: Biotehniška fakulteta. https://www.kgzs-ms.si/wp-content/uploads/2023/09/Prirocnik-za-izvajanje-panoznih-krozkov.pdf (accessed May 20, 2025).*

Olena Sakovska
ORCID: https://orcid.org/0000-0003-2676-6170
PhD in Economics, Associate Professor, Associate Professor of the Department of Tourism, Hotel and Restaurant Business
Uman National University
(Uman, Ukraine)

THE ROLE OF RECREATIONAL ACTIVITIES IN INCREASING THE ATTRACTIVENESS OF TOURIST DESTINATIONS

https://doi.org/10.5281/zenodo.15709924

Abstract
The article provides an empirical analysis of the impact of recreational activities on the development of touristic destinations. It is indicated that in recent years in Ukraine the number of people engaged in tourism activities involving the use of recreational services has been increasing. Such activities create a need for the development and provision of recreational services and increase the share of natural recreational areas. In this regard, there is an increase in recreational pressure on natural complexes and objects of special environmental and recreational significance. It is pointed out that some negative factors and factors of tourist and recreational activities lead to the degradation of the nature reserve fund, which creates the need to preserve natural complexes and their landscape. On the basis of the conducted analysis, the main directions of recreational and tourist activities within recreational areas have been identified. It is indicated that tourism and recreational activities are an integrated process of certain human actions, which leads to a certain set of tourism products and services based on the use of certain resources: raw materials, equipment, labor, technological processes, etc. It is determined that the resource base for tourism and recreational activities is the natural, historical and cultural objects of a certain territory. One of such locations may be the territory of a nature reserve fund. The article assesses the recreational activities of the territory of the National Nature Park "Nizhniosulsky", which is an object of the nature reserve fund of Ukraine. The study made it possible to develop practical proposals, the implementation of which will help to reduce the negative impact of recreational activities on the objects of the nature reserve fund located in the territory of certain tourist destinations. In conclusion, it is stated that recreational activities are currently having a significant impact on the development of tourist

destinations, in particular, those with nature reserves, including nature preserves and parks. Being an important element of the natural resource potential, nature preserves and parks not only ensure the fulfilment of environmental protection functions but also become a key element of tourism development in Ukraine.

Keywords: *tourism, recreation, statistics, nature reserve area, destination.*

Introduction

In Ukraine, the number of people engaged in tourism activities has been increasing recently, which increases the share of use of natural areas covered by tourism activities. In this regard, there is an increase in recreational loads on the nature reserve fund (natural complexes and objects that have special environmental, scientific, aesthetic, recreational and other value). The specified activity leads to the degradation of the nature reserve fund, therefore, a problem arises in the preservation of natural complexes and their landscape. This aspect creates a need for more in-depth research in the direction of studying the issue of recreational activities in tourism and determining the norms of recreational load (critical standards) in order to develop tourist destinations and preserve the nature reserve fund of Ukraine.

Various aspects of the topic of recreational activities have been covered in the works of domestic and foreign scientists. Thus, the authors Kozhukhivska R.B., Sakovska O.M., Maliuga L.M. and Maslovata S.A. note that "today the tourism industry and the recreation sector are actively developing, which are becoming increasingly important for the economic development of Ukraine. The development of tourist and recreational zones has a positive impact on the economic growth of regions, in particular, the activities of health and cultural institutions are improving, and the percentage of small and medium-sized enterprises in regions with rich tourism potential is increasing" (Kozhukhivska R.B. et al., 2019).

The development of the recreational sphere at the present stage occurs through the expansion of recreational potential, the creation of multifunctional territories of the nature reserve fund and their involvement in recreational use. Ensuring environmentally safe

nature use in the territories and objects of the nature reserve fund requires taking into account environmental, social and economic factors that determine the state of recreational resources and form the conditions for their use. First of all, this concerns regional features of recreational nature use, which have significant differences in both natural, environmental and socio-economic aspects (Bavrovska N.M., Butenko E.V., 2015). The recreational resource potential of a territory is the total productivity of its recreational resources. A certain recreational territory can provide recreational services only to a certain number of vacationers who are able to satisfy their own recreational needs. This depends on many factors, the main of which is the availability of reserves of recreational resources (V'iun V.H., Ivanov A.M., 2010).

The study of the impact of recreation on the microrelief of tourist routes is relatively poorly developed; the list of indicators that will qualitatively and quantitatively characterize the features of microrelief changes at individual stages of recreational digression remains problematic (Brusak V.P., 2018). The increase in recreational and tourist activity in natural national parks has led to an expansion of the spectrum of issues on planning ecological and educational trails in methodological developments, the introduction of regulatory measures to reduce the anthropogenic load on natural systems, the introduction of a recreational use regime for certain territories, and the introduction of paid services (Hanych, N.M., Skabara, R.M., Stets'kyj, V.V., 2021).

Considering the conducted analysis of research and publications on the development of the potential of territories and the use of the recreational and resource base of territories, it is worth pointing out the significant significance of the analysed works. However, in our opinion, insufficient attention has been paid to the study of the role of recreational activities and its impact on increasing the attractiveness of tourist destinations, both in theoretical and methodological aspects and in practical aspects, therefore we consider it advisable to conduct a more thorough study in this direction.

Materials and Methods

For the theoretical part of the study, the works of foreign and domestic scientists in the field of recreational activities were used.

The methods used in studying the topic of the article and writing it include a set of measures of systemic and comparative analysis, are based on an institutional approach using the assessment of statistical information, as well as the author's own generalizations.

Results and Discussion

During the severe economic crisis, the issue of rational use of tourism resources has become quite acute for society. Almost all of them are used spontaneously, unplanned, unregulated, without taking into account permissible loads. As a result, under the influence of anthropogenic loads and natural conditions, tourist facilities and territories gradually lose their original attractiveness and valuable recreational properties.

To preserve and restore them, a set of measures is necessary, the implementation of which is impossible without identifying the recreational opportunities of individual resources, the load on the territory so as not to harm it, the maximum and minimum number of tourists that the relevant territory can accommodate, and so on (V'iun V.H., Ivanov A.M., 2010).

Tourism and recreational activities are an integrated process of certain human actions, which leads to obtaining a certain set of tourism products and services based on the use of certain resources: raw materials, equipment, labor, technological processes, etc. The resource base for tourism and recreational activities is the natural and historical and cultural objects of a certain territory. One of such locations may be the territory of a nature reserve fund.

The main types of recreational and tourist activities on the territory of the nature reserve fund can be: health improvement; rest; excursion activities; amateur and sport fishing; various types of tourism: children's, youth, family, socially inclusive, educational, sports, religious, ecological, rural (green), extreme, etc.

Recreational activities on the territory of the nature reserve fund of Ukraine are regulated by such basic documents as: the Law of Ukraine "On Tourism", the Law of Ukraine "On the Nature Reserve Fund of Ukraine", the Regulations on Recreational Activities within the Territories and Objects of the Nature Reserve Fund of Ukraine, which ensures the proper organization of recreation and tourism within the nature reserve fund of Ukraine and other regulatory

documents. Thus, the Law of Ukraine "On Tourism" defines the principles of organizing tourism as a socio-economic activity, helps to interact with tourists and the tourism business accordingly; the Law of Ukraine "On the Nature Reserve Fund of Ukraine" defines the possibilities and restrictions for organizing recreation and tourism depending on the categories of territories and objects of the nature reserve fund of Ukraine. For example, tourism is prohibited in nature reserves and protected areas of national natural, biosphere reserves and regional landscape parks. The Law of Ukraine "On the Nature Reserve Fund of Ukraine" defines that "The Nature Reserve Fund consists of areas of land and water space, natural complexes and objects of which have special environmental, scientific, aesthetic, recreational and other value and are allocated for the purpose of preserving the natural diversity of landscapes, the gene pool of the animal and plant world, maintaining the overall ecological balance and ensuring background monitoring of the natural environment" (Law of Ukraine "On the Nature Reserve Fund of Ukraine", 1992).

According to the Law of Ukraine "On the Nature Reserve Fund of Ukraine", the territories and objects of the nature reserve fund are divided into natural territories and objects, namely: nature reserves, biosphere reserves, national natural parks, regional landscape parks, nature reserves, natural monuments, protected areas; artificially created objects – botanical gardens, dendrological parks, zoological parks, parks-monuments of landscape art (Law of Ukraine "On the Nature Reserve Fund of Ukraine", 1992).

The basic areas of recreational and tourist activities within the recreational territories and objects of the nature reserve fund of Ukraine are:

– creating conditions for carrying out these activities while respecting the regime of territories and objects of the nature reserve fund of Ukraine;

– organization and arrangement of information and tourist centres, ecological and educational trails, tourist routes, observation decks, recreational areas, campsites, and recreation camps;

– dissemination of information of advertising and informational content (publication in the media and on web pages of information about recreational resources and services, as well as about recreational activity subjects within the natural reserve fund of

Ukraine and/or near them);

– study, generalization and implementation of the best national and foreign experience and practices in organizing recreational and tourist activities;

– formation among vacationers and local residents of a culture of health improvement, recreation and tourism in nature, a careful and humane attitude towards natural and cultural heritage.

Among the main conditions for the development of recreation and tourism in the territory of the nature reserve fund of Ukraine is the minimization of the negative impact of vacationers on natural complexes and historical and cultural objects. Recreational and tourist use of territories and objects of the nature reserve fund of Ukraine is possible provided that an appropriate system of management and economic measures is developed, taking into account the established regime of protection and use of resources located in these territories.

Usually, when developing management decisions and tourism development projects, the main factor is demand, on the basis of which plans for increasing the recreational capacity of the territory and regulatory legal acts are created. But in the territories of the nature reserve fund, the leading role is given to environmental protection tasks. Therefore, the main condition for ensuring a balance between social and environmental interests is the regulation of recreational load.

Natural complexes and their constituent elements differ significantly in their potential resistance to recreational loads. The resistance of a natural complex to recreational loads is its ability to withstand these loads up to a certain limit. Exceeding the loads leads to the loss of the natural complex's ability to self-recover.

Recreational load should be understood as the number of tourists visiting a unit of area of a natural complex in a certain unit of time. The unit of measurement of recreational load is person-hour/ha, or person-day/ha. The latter is somewhat more convenient for practical use and means that during the entire comfortable period, one person or a certain number of people rest on a 1-hectare area for 8 hours (accepted daylight hours) every day (Brusak V.P., 2018). There is a distinction between critical (causing irreversible changes in the natural complex) and maximum permissible (determined by the

number of vacationers that does not lead to irreversible changes in the natural complex) load (Polchaninova I.L., Pokolodna M.M., 2021). Currently, the most widely used method for determining the impact of recreational activities on the development of tourist destinations is the method of determining the maximum recreational load on natural complexes ($\sum_{rc}$) during the organization of tourism, excursions, and mass everyday recreation, where the main indicators are: permissible recreational load on the site (persons/ha), area of the recreational site (ha), and recreational potential coefficient.

$$\sum rc = Rc * Sa * Erp, \quad (4.1)$$

where: R_c – permissible recreational load on the site, *persons/ha;*

S_a – area of the recreational site, *ha*; E_{rp} – coefficient of recreational potential.

To conduct a study on determining the impact of recreational activities on the development of tourist destinations, we selected the National Nature Park "Nizhniosulsky". The park was created in 2010 and is an object of the Nature Reserve Fund of Ukraine of national importance. The park is located on the territory of the Globynsky, Orzhytsky and Semenivsky districts of Poltava region, Chornobayivsky district of Cherkasy region.

Recreational activities in the park are carried out in accordance with the Regulations on Recreational Activities within the Territories and Objects of the Nature Reserve Fund of Ukraine, approved by Order of the Ministry of Environmental Protection No. 330 dated June 22, 2009, registered with the Ministry of Justice of Ukraine on July 22, 2009 under No. 679/16695, as amended.

The main areas of recreational activities in the territory of the National Nature Park "Nizhniosulsky" are:

– creating conditions for organized and effective tourism, recreation and other types of recreational activities in natural conditions while observing the protection regime for natural complexes and objects;

– ensuring the demand of vacationers for general health, cultural and educational recreation, tourism, amateur and sport fishing, in

accordance with the regime of the park territory, etc.;

– justification and establishment of the permissible level of anthropogenic load, including that caused by recreational activities, on the territory, natural complexes and objects of the park;

– organization of advertising, publishing and information activities, environmental education among vacationers and tourists within the park territory;

– promoting the formation of an ecological culture among vacationers and local residents, a careful and humane attitude towards the national natural heritage (National Nature Park "Nizhniosulsky", 2025).

Recreational activities are carried out by the park, ensuring: the creation and functioning of recreational infrastructure; organization and infrastructural arrangement of tourist and excursion routes, ecological and educational trails; coordination of the activities of recreational activity subjects by the park, regardless of the form of ownership and subordination, taking into account the use of natural and historical and cultural resources within the territories and objects of the park; creation and maintenance of an information bank of data on recreational facilities located within the territory of the park; participation in domestic and international scientific and practical conferences, congresses, seminars dedicated to issues of recreation development; study, generalization and implementation of domestic and foreign experience in organizing recreational activities.

On the territory of the National Nature Park "Nizhniosulsky", in accordance with environmental legislation, the following zones are distinguished: a reserve zone; a zone of regulated recreation (within its boundaries, short-term rest and recreation of the population are carried out, a tour of especially picturesque and memorable places, visiting the ecological trail "Journey to Lake "Sudevskoye" and the tourist trail "Along the Sula"); a zone of stationary recreation (intended for the placement of hotels, motels, campsites, and other visitor service facilities); an economic zone.

We will assess the permissible recreational load for the National Nature Park "Nizhniosulsky". It should be noted that the determination of the permissible recreational load is carried out using a visual assessment of the digression of the trails. Based on the visual assessment of the digression of the trails, the optimal load is

determined, at which it is possible to avoid irreversible changes in the ecosystem.

To assess the impact of recreational activities on the natural complexes of the reserve, the most popular among tourists ecological trail "Journey to Lake "Sudevske" is monitored annually. As a rule, the assessment of the condition of the ecological trail is carried out twice a year – at the beginning and end of the season. But it is worth noting that in 2025, due to martial law in Ukraine and insufficient funding for the economic needs of the park (in particular, three times less funds were allocated for conducting ecological monitoring studies), an assessment of the condition of part of the route at the beginning of the season was not carried out.

The level of digression of the trail is determined by visual assessment and assignment of a digression stage (from 0 to V). Using the Garmin GPSMAP 65 GPS navigator and the Garmin Explore™ the length of sections of the trail with different degrees of digression is measured. The data is processed in the Google application Earth, where the percentage of the digression stages of the trail are calculated.

An analysis of the level of digression of the trail, conducted at the beginning of 2022, showed that by the beginning of the season, the trail managed to partially recover from the previous tourist season, however, the level of digression increased significantly compared to the beginning of the 2021 season. Thus, the share of sections with level II digression increased from 28% to 59% compared to 2021, level 3 was assigned to 31% of the trail (in 2021 it was 19%). The share of sections with the least digression (stage I) in 2022 decreased from 28% to 2%. Sections with level IV appeared, which were not there at the beginning of the 2021 season – their share is 1.5%. The deterioration of the trail was probably influenced not only by the increase in anthropogenic load, but also by the large amount of precipitation at the beginning of the 2022 season, which led to waterlogging of the area and, as a result, reduced the stability of the trail and its ability to recover.

According to the statistical and analytical documentation of the National Nature Park "Nizhniosulsky", the permissible recreational load of the territory is defined as 30 people/day. However, this value was determined in 2015, when the actual load was 900 people per

season, respectively, the anthropogenic impact on the territory was lower.

The permissible recreational load in 2022 was 2,280 people – 30 people/day * 76 days (season duration in 2022). The actual load is 3,865 people, which exceeds the permissible load by 1.7 times.

Despite the fact that in the period from 2020-2021 the actual daily recreational load did not exceed the permissible daily load, the condition of the ecological trail "Journey to Lake "Sudevske" continues to deteriorate. This is explained by the temporal heterogeneity of the load distribution. Thus, the most massive visits to the routes are observed on average during 2 months – July and August, which account for 80-90% of the total recreational flow. During the peak of the tourist season, the actual load may exceed 60 people/day, which causes more harm than with a more uniform distribution during the season with the same number of visitors. Under such conditions, it would be advisable to calculate the recreational capacity of the park territory based on determining the average indicator between the permissible recreational load and the environmental impact coefficient according to the formula:

$$\sum \text{rtc} = \frac{\text{Rc}}{\text{Eek}}, \tag{4.2}$$

where: R_c – the permissible recreational load on the site; E_{ek} – environmental impact coefficient.

The ecological impact coefficient is determined based on the type of recreational nature use: 0.01 – for road recreation, 1 – for off-road, 2 – mining, 5 – bivouac, 7 – transport-off-road, 13 – infrastructure (Polchaninova I.L., Pokolodna M.M., 2021). So, for the National Nature Park "Nizhniosulsky" the coefficient is taken as 1, and the recreational capacity is equal to the value of the permissible recreational load - 2280 people. However, the presence of separate sections of the ecological trail "Journey to Lake "Sudevske" with a maximum permissible level, which are not restored until the beginning of the next season, indicates the need to reduce the permissible recreational load. Given that, by the beginning of the

2025 season, the portion of the trail with the maximum permissible degree of digression will be only 1.2%, we have made an assumption about the need to reduce the maximum permissible load by 10%.

Considering that the actual load on the recreational area of the National Nature Park "Nizhniosulsky" significantly exceeds the maximum permissible, we propose to take the following measures:

– limit visits to the area during the autumn-winter period;
– distribute the daily recreational load on the territory evenly throughout the season;
– build wooden decks in waterlogged areas of trails;
– in order to reduce anthropogenic load, it is necessary to reduce the maximum number of tourists in the group;
– monitor the condition of the trails throughout the season, and if necessary, limit park visits.

Conclusions

Currently, recreational activities have a significant impact on the development of tourist destinations, in particular, on the territory of which there are objects of the nature reserve fund, in particular nature reserves and parks. Being an important element of the natural resource potential, nature reserves and parks not only ensure the implementation of environmental protection functions, but also become a key element in the development of tourism in Ukraine.

Recreational activities at the objects of the nature reserve fund have a specific structure, based on the balance of environmental and economic interests. At the same time, properly organized recreational and tourist activities can become an important component of environmental protection and socio-economic development of the destination, will contribute to the growth of environmental awareness of citizens by involving them in natural and cultural values. Therefore, in order to develop tourist destinations and preserve the nature reserve fund of Ukraine, it is important to carry out constant monitoring of the objects of the nature reserve fund, in particular, determining the norms of recreational load on the territory, conducting an analysis of anthropogenic load, assessing the development of infrastructure and developing an effective strategy for territory management.

In our opinion, the main steps to reduce the negative impact of recreational activities on the objects of the nature reserve fund located on the territory of individual tourist destinations should be innovative ways and special measures, in particular: preserving biological and landscape diversity; implementing eco- and environmental educational activities among the population; organizing and implementing ecotourism as a new type of tourist activity that does not harm the environment and contributes to its authenticity; conducting ecological monitoring of territories; renovation of disturbed natural objects.

References:

1. *The Nature Reserve Fund of Ukraine. Wikipedia: a free encyclopedia. Retrieved from https://uk.wikipedia.org/wiki/Природно-заповідний_фонд_України (accessed May 10, 2025).*
2. *Kozhukhivska, R., Sakovska, O., Maliuga, L., & Maslovata, S. (2019).The formation of a system of investment prospects of Ukrainian tourism and recreation sector enterprises on terms of benchmarking. Proceedings of the 33rd IBIMA Conference «Education Excellence and Innovation Management through Vision 2020», (Granada, April 10-11, 2019), pp. 5282-5290.*
3. *Bavrovs'ka, N.M., & Butenko, Ye.V. (2015). Use of recreational areas in the context of effective land management. Kyiv: MVTs «Medinform».*
4. *V'iun V.H., & Ivanov, A.M. (2010). Methodology for determining the recreational loads on protected areas. Economics and management, 5, pp. 82-85.*
5. *Brusak, V.P. (2018). Methodological aspects of the study of recreational digression of microrelief of tourist routes. Problems of geomorphology and paleogeography of the Ukrainian Carpathians and adjacent territories, 1(8), pp. 108-120.*
6. *Hanych, N.M., Skabara, R.M., & Stets'kyj, V.V. (2021). The current state and ways to intensify the tourist activity of the Buzky Gard National Nature Park. Proceedings from: VII International Scientific and Practical Conference «Priority directions of science and technology development», (Kyiv, March 21-23, 2021). Kyiv: SPC «Sci-conf.com.ua», pp. 517-523.*

7. *About tourism: Law of Ukraine № 325/95-BP (1995, September 15). Retrieved from https://zakon.rada.gov.ua/laws/show/324/95-%D0%B2%D1%80# Text (accessed May 10, 2025).*
8. *Regulations on Recreational Activities within the Territories and Objects of the Nature Reserve Fund of Ukraine: Decree of the Ministry of Environmental Protection and Natural Resources of Ukraine №256 (2022, July 26). Retrieved from https://zakon.rada.gov.ua/laws/show/z1043-22#Text (accessed May 10, 2025).*
9. *Recreation and tourism. Ministry of Environmental Protection and Natural Resources of Ukraine. Retrieved from https://wownature.in.ua/pro-nas/nasha-diialnist/rekreatsiia/ (accessed May 10, 2025).*
10. *About the Nature Reserve Fund of Ukraine: Law of Ukraine № 2457-XII (1992, June 16). Retrieved from https://zakon.rada.gov.ua/laws/show/2456-12#Text (accessed May 10, 2025).*
11. *Creation of territories and objects of the nature reserve fund as a way to preserve the national wealth of Ukraine. Ecobusiness. Retrieved from https://ecolog-ua.com/news/stvorennya-teritoriy-ta-obiektiv-prirodno-zapovidnogo-fondu-yak-shlyah-do-zberezhennya (accessed May 10, 2025).*
12. *Polchaninova, I.L., & Pokolodna, M.M. (2021). Recreational complexes of the world. Kharkiv: KhNUMH im. O.M. Beketova.*
13. *National Nature Park "Nizhniosulsky". Ministry of Ecology and Natural Resources of Ukraine. Retrieved from https://nppns.at.ua/index/informacija_pro_park/0-19 (accessed May 10, 2025).*
14. *Li, T., Liao C., Law, R. & Zhang, M. (2023). An Integrated Model of Destination Attractiveness and Tourists' Environmentally Responsible Behavior: The Mediating Effect of Place Attachment. Behavioral Sciences, 13, 264. Retrieved from https://www.mdpi.com/2076-328X/13/3/264 (accessed May 10, 2025).*

Halyna Skoryk
ORCID: https://orcid.org/0000-0002-6637-7252
PhD in Economics, Associate Professor of the Department of Theoretical and Applied Economics
Lviv Polytechnic National University
Nataliia Ivanytska
ORCID: https://orcid.org/0000-0002-3736-4110
Senior Lecturer of the Department of Theoretical and Applied Economics
Lviv Polytechnic National University
(Lviv, Ukraine)

HUMAN CAPITAL AS BASIS FOR SUSTAINABLE DEVELOPMENT OF UKRAINE

https://doi.org/10.5281/zenodo.15709930

Abstract
The article emphasizes the need to ensure stable social-economic development based on sustainable development by attracting sufficient human capital.
The important task is to preserve and increase human capital by developing and implementing effective levers and management mechanisms at the micro and macro levels in the conditions that Ukraine is experiencing due to the aggression of the Russians.
The public administration system should develop human capital: education, healthcare, and social development.

Keywords: *human capital, labour, sustainable development, social-economic development, human resource management.*

Introduction

In today's society, information and knowledge, the carriers of which are people, are becoming increasingly important. To ensure social-economic progress, the quality of the labour force is demanded increasingly, making this resource more critical than other resources, especially natural ones. Therefore, today, the key factors in sustainable economic growth are not just scientific and technological progress, modernization of production, and

improvement of technologies but also increased competitiveness through the efficient use of human capital.

The theory and practice of economic life show that the realization of the concept of sustainable growth largely depends on human capital. In modern conditions, therefore, the effectiveness of the state's economic policy should be determined not only and not so much by economic indicators but also by achievements in human development, mental and physical abilities, and the growth of social and political activity of citizens.

Experience shows that those countries that have made significant investments in education, science, and human development have succeeded in growing their economies and improving the quality of life. The leading countries in today's world effectively use knowledge, skills, competencies, and the ability to learn constantly. Investments in human capital are the key to the sustainable development of the country and the creation and development of an innovative economy.

The country must accumulate human capital for a social breakthrough and transition to a new technological order (Kuznets, 2001).

Materials and Methods

The foundations of the human capital theory were outlined in the works of W. Petty, A. Smith, A. Marshall, T. Schultz, G. Becker, R. Lucas, and others. In particular, (Petty) attempted to estimate the value of human capital and its impact on the economic well-being of England.

(Smith, 2023) emphasized that natural differences, peculiarities of upbringing, and education of different classes of people are a comparative advantage in the division of labour and specialization, the deepening of which provides significant competitive advantages and is based on investments in human capital.

Among modern scholars, the research of (Becker, 1993) was considered the basic one, according to which, the total amount of human knowledge, production skills, and motivations stand out, which in the future can provide a level of return similar to the return on investment in fixed assets.

Results and Discussion

We should distinguish two aspects of defining the concept of human capital:

1. A stock of knowledge, skills, motivation, experience, and health possessed by a person that affects the level of labour productivity and contributes to the growth of its income;

2. A stream of income that ensures an even higher income level if you invest in your development. In other words, human capital is the total of all the qualities of an employee that can be involved in the production process, such as knowledge, skills, experience, motivation, energy, endurance, and health.

In modern economic science, several approaches define the interpretation of human capital (Khimchenko, Liekh, 2012). Human capital is considered specific abilities of people that are realized in the process of work according to the traditional approach, which was followed by scientists J. Mill, W. Roscher, F. List, H. Sidhuik, and N. Senor. Such abilities are education, experience, and qualifications.

I. Fisher, L. Walras, J. M. Clark, and W. Farrm take a different approach, emphasizing that it is a natural eternal capital. Human capital is renewable, and its content consists of natural and acquired human qualities. J. Kendrick and G. Johnson supplemented the understanding of human capital with investments in the physical, intellectual, educational, and professional formation of a person, health care, and movement.

In their theories, G. Becker, T. Schultz, and J. Lindsay combined traditional and alternative approaches and supplemented them with the principle of rational human behaviour. On this basis, the authors interpret human capital as a set of natural and acquired abilities and qualities that ensure income generation at all levels of the economy. These include knowledge, skills, and experience.

Domestic researchers mainly interpret human capital, based on the socio-economic approach, as a resource that is consciously used in labour activity, as a means for self-realization, development, and existence. Human resources, in turn, are a set of unique qualities of people, including attitudes, beliefs, and behaviours (Turylo, 2019).

Human capital is defined as knowledge, education, experience, skills, competencies, physiological and psychological state, and moral and ethical qualities that contribute to the realization of

production, financial and economic, socio-cultural, innovative, and adaptive functions (Mann, Liashov, 2020).

Human capital, in addition to all of the above, can be interpreted as an effective resource that should be used for the social and economic development of the state based on its qualitative and quantitative growth in all structures of society, including business entities (Hrynko, Nastychenko, 2021).

Thus, human capital is interpreted in the following aspects:

– as a value (an asset that generates income);

– as a system (a set of interconnected and interacting elements, structural links between economic entities regarding the formation and use of people's abilities and their intellectual resources);

– as a process (ability to reproduce);

– as a result (used in all areas of activity) (Iesinova, Borzylo, 2013).

Based on the review of approaches to the interpretation of human capital, it can be concluded that human capital is a stock of health, knowledge, skills, motivations, and abilities of people, formed and developed because of investments in people and purposefully used in a particular field of activity, ensuring growth in labour productivity and income.

This approach to human capital indicates that the country's sustainable economic development is conditioned by the development of human capital, which, as the main driving force of socio-economic development, provides conditions for stable economic growth, increased efficiency and quality of labour, competitiveness of producers, eco-friendly economic activity, and improvement of the quality and comfort of life of society. The main components of human capital development, as well as sustainable development, are economic, environmental, and social components.

The Government's human capital development policy should be aimed at ensuring the growth of real GDP and household incomes, solving demographic problems associated with the aging of the nation and the out-migration of the working-age population outside Ukraine, improving public health and promoting a healthy lifestyle, improving the education system and the quality of educational services, etc.

The educational sphere should be the key to human capital

management. Education, development of science and technology, and implementation of STP achievements in social and economic life are essential conditions for the socio-economic development of society, increasing the competitiveness of the national economy and strengthening national security. This is confirmed by the fact that about two-thirds of the world's GDP is generated by human capital (Shulha, 2023).

Ensuring stable social and economic development and the post-war reconstruction of the Ukrainian economy based on the principles of sustainable development involves attracting sufficient human capital. The public administration system should be aimed at developing the components of human capital: education, healthcare, social development, etc.

Human resource management should be viewed as a set of norms, methods, tools, and levers interconnected with each other, which are used by the state to influence the formation, distribution, use, and development of human capital in the face of modern challenges following the strategic goals of building an innovative and competitive model of the national economy.

The human capital is managed by administrative (permits, prohibitions, coercion) and economic (fiscal and monetary) methods. The mechanism of public human capital management combines administrative, legal, business, and organizational levers of influence.

One of the main elements of the mechanism of state management of human capital formation is the existence of a strategy according to (Tereshchenko, 2020). Such a strategy should account for the regularities of national economic development, the specifics of the functioning of meso- and micro-level economic systems, the latest technological modes, market requirements, and trends in the transformation of the global economy.

Human capital development is crucial for ensuring economic growth and social stability. However, in the current environment, the country faces some underlying problems that make it difficult to utilize the capabilities of HR resources.

The effective development of human capital playing field in which a person acquires knowledge and skills that not only meet the current needs of society and the economy but also outpace them (The

importance of human capital…, 2021). Only under such conditions is intellectual or technological progress in social life possible, as well as maintaining the country's competitiveness in the international community.

Human capital accounts for 70% of the national wealth of developed countries and only 30% of the national wealth of Ukraine. According to the most optimistic forecasts, in 10 years, the number of working-age people in Ukraine will decrease by 5.5% (Sytnyk, Libanova, 2025).

People are the most lost from war (The importance of human capital…, 2021) because they cannot be restored. The problem is migration due to the war, a decrease in the birth rate, and an aging population.

The labour shortage will be felt long after the war, and the state should have a strategy for returning emigrants to restore the economy. To return from abroad, people need security, trust in the government, jobs, and housing (Ukraine's resilience to crises…, 2025).

One of the most acute problems is the decline in the quality of education and the lack of relevance of educational programs to the requirements of the modern labour market. Despite the educational reforms, there is a gap between the theoretical knowledge graduates receive and the practical skills needed for effective professional work. In addition, funding for the education sector remains limited, which negatively affects the modernization of the infrastructure of educational and research institutions. In the context of the full-scale invasion of Ukraine by the Russian Federation, access to education is decreasing. As of the 2022/23 academic year, there were 12,929 general secondary education institutions in Ukraine, of which 28.8% operated remotely, 15.1% in a mixed format, and only 56.1% in the usual full-time mode. In addition, 116 preschool education institutions were destroyed (News of education in Ukraine, 2023; Ministry of Education and Science of Ukraine).

Demographic challenges, including population aging and massive migration of able-bodied citizens abroad, are an important factor complicating the development of human capital. The loss of highly qualified personnel causes a decline in the country's internal intellectual and labour potential. It also deepens regional disparities,

as the outflow of human resources is most often observed from less developed regions.

The State Border Guard Service recorded 18.52 million departures from Ukraine and 15.84 million entries as of May 1, 2023, which indicates a net outflow of 2.68 million people.

At the end of January 2024, 30.2 million people had left and 26.9 million had entered since the start of the full-scale invasion. Approximately 3.3 million Ukrainians abroad left after the full-scale invasion began through the western border. However, this figure should be added to the number of Ukrainians who left for other European countries through Russia and Belarus. According to a survey conducted by Info Sapiens, there were 7.5% of them (or 250 thousand people who went abroad and did not return from February 2022 to January 2024). Therefore, there are about 3.6 million Ukrainian refugees abroad, not including those in Russia or Belarus (according to the UN, there are 1.3 million). If we compare these figures, the total number of Ukrainian refugees reaches 4.9 million. (Ukrainian refugees…, 2024).

According to UN estimates, more than 8 million Ukrainians have left the country since the beginning of the war, causing significant losses to the working population. In addition, a considerable portion of the male population mobilized into the Armed Forces of Ukraine, reducing the supply of human labour (Ukrainian refugees…, 2024). At the same time, Ukraine is facing a demographic crisis due to high mortality and low birth rates.

Low levels of investment in healthcare also harm the quality of human capital. The state of healthcare infrastructure and limited access to quality healthcare services, especially in rural areas, reduce the overall level of health of the population, which directly affects labour productivity. In 2023, Ukraine saw a decrease in the number of healthcare professionals and healthcare facilities. In particular, the number of doctors decreased by 5% compared to the previous year, and the number of hospital beds decreased by 7% (DiXi Group…, 2025).

In addition, the lack of effectiveness of state social policy is an urgent problem. Existing social support programs often do not meet the real needs of the population and do not contribute to forming a favourable environment for self-realization. The lack of systemic

support for professional retraining and continuous learning exacerbates the problem of a mismatch between supply and demand in the labour market.

The problems of human capital development have become particularly urgent in the context of military aggression and armed conflict, which have led to large-scale destruction of infrastructure, internal displacement of the population, rising unemployment, and psychological trauma for a large number of citizens. Because of the hostilities, more than 2,700 educational institutions were damaged and 440 were destroyed. The healthcare system has also suffered significant losses – more than 1,200 healthcare facilities have been damaged by shelling, and about 200 hospitals have been destroyed (DiXi Group…, 2025). This complicates the population's access to quality medical services and educational opportunities, significantly hindering human capital development.

The worst affected regions, such as Donetsk, Luhansk, Zaporizhzhia, and Kherson, have critical problems with access to medical, educational, and social services. According to the State Statistics Service, the unemployment rate in these regions exceeds 30%, and the number of operating businesses has more than halved. The central and western regions of Ukraine are facing an overload of social infrastructure due to the significant influx of internally displaced persons.

A comprehensive policy should be implemented to ensure Ukraine's sustainable development. It should be aimed at modernizing education, supporting healthcare, stimulating investment in human capital, preserving labour potential, reducing migration losses, and integrating vulnerable groups into the country's socioeconomic life.

It is necessary to implement a complex of measures for the efficient development of human capital in Ukraine, including:

– Modernization of the education system with an emphasis on practical training under the requirements of the modern labour market. Transforming Ukrainian education into an innovative environment for pupils and students will acquire the key competencies necessary for a successful life, and scientists will have all the opportunities and resources they need to do their work.

– Increase investment in healthcare to ensure access to quality

healthcare services in all regions. Improving the quality of healthcare services, in particular through the development of primary healthcare and preventive programs, promoting the health of citizens, and increasing their productivity.

– Introducing programs to support continuous professional training and retraining. Improving vocational education, which currently lacks the flexibility to respond quickly to labour market demands, given the catastrophic shortage of personnel in the labour market (DiXi Group…, 2025).

– Creating incentives for retaining labour potential within the country and returning emigrants. The human capital development policy should be aimed at developing the working population and youth, encouraging the return of Ukrainian specialists from abroad. In particular, the Ministry of National Unity of Ukraine has allocated UAH 150 million 28.7 thousand from the general fund of the state budget for 2025 to implement a program to facilitate the return of Ukrainians to Ukraine (Ukrinform, 2025).

– Improving state social policy to ensure targeted support for vulnerable populations. Ensure effective integration of veterans and persons with disabilities, create a steady system of transition from military service to civilian life, and improve the rehabilitation system of persons with disabilities, which are important for social cohesion and the use of the potential of all citizens (Human capital development).

– The development of housing programs, such as affordable e-housing mortgages, will help improve the housing conditions of the population and stimulate economic activity.

The comprehensive implementation of these measures will help preserve and increase human capital, which is critical to ensuring Ukraine's economic recovery and development in the face of global challenges.

Conclusions

In the conditions that Ukraine is experiencing due to the aggression of the Russians, an important task is to preserve and increase human capital by developing and implementing effective management levers and mechanisms at both the micro and macro levels.

Human capital development is a strategic priority for Ukraine. Overcoming the existing problems is possible only through comprehensive reforms of education, healthcare, and the social sphere. In addition, it is also important to create an environment conducive to the self-realization of citizens. An active government policy in this area should become one of the key factors of economic growth and increase the country's competitiveness in the international space.

References:

1. *Simon S. Kuznets. (2001). National Academy of Sciences. Biographical Memoirs: Vol. 79. Washington, DC: The National Academies Press. URL: https://nap.nationalacademies.org/read/10169/chapter/13#203*
2. *Petty W. Essays on Mankind and Political Arithmetic, by Sir William Petty. URL: http://www.gutenberg.org/ebooks/5619*
3. *An Inquiry Into The Nature And Causes Of The Wealth Of Nations by Adam Smith (2023). translated from English by O. Vasiliev, M. Mezhevikina, and A. Malivsky. Kyiv. Nash format. 722 p.*
4. *Becker Gary S. (1993). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education.Chicago: University of Chicago Press. 480p.*
5. *Khimchenko A., Liekh T. (2012). The genesis of human capital theory. Effective economy. Vol. 5. [in Ukrainian]. URL: http://www.economy.nayka.com.ua/?op=1&z=1131*
6. *A Turylo (2019). Concept of assessment and management of human capital at the enterprise. Economic journal of Lesya Ukrainka Volyn National University. Vol. 2, 18 (Jun. 2019), pp.44–50. DOI: https://doi.org/10.29038/2411-4014-2019-02-44-50.*
7. *Mann R., Liashov D. (2020). Development of human capital of enterprise as a condition of economic growth of society. Proceedings of Scientific Works of Cherkasy State Technological University. Series: Economic Sciences. Vol. 59. pp. 17–25.*
8. *Hrynko T. V., Nastychenko Yu. V. (2021). Theoretical fundamentals of strategic management of human capital of the enterprise. Ekonomichnyi prostir, Vol 176, pp.53-57. DOI: https://doi.org/10.32782/2224-6282/176-8.*
9. *Iesinova N. I., Borzylo Yu. (2013). Human capital is one of the main factors of social progress. Economic strategy and prospects for the development of trade and services. Vol. 2(2). pp. 201–209.*
10. *Shulha O. (2023). State management of human capital development in modern conditions. Economy and Society. Vol. 57. DOI:*

https://doi.org/10.32782/2524-0072/2023-57-129

11. *Tereshchenko, D. (2020), "Formation of government regulation mechanisms with human capital development", Investytsiyi: praktyka ta dosvid, vol. 4, pp. 103–108. DOI: 10.32702/2306-6814.2020.4.103.*
12. *The importance of human capital development in the modern world. Ukrainian Institute of the Future (2021). URL: https://uifuture.org/publications/vazhlyvist-rozvytku-lyudskogo-kapitalu-u-suchasnomu-sviti-yakoyu-maye-buty-strategiya-ukrayiny/*
13. *Marharyta Sytnyk (2025). Ella Libanova: A peace agreement can be a serious problem because everyone has a different understanding of peace terms. URL: https://glavcom.ua/interviews/ella-libanova-bez-vstanovlennja-doviri-ljudi-ne-povernutsja-z-za-kordonu-1045961.html*
14. *Ukraine's resilience to crises: the formation and development of human capital. (2025). URL: https://ces.org.ua/ukraines-resilience-to-crises-the-formation-and-development-of-human-capital/*
15. *News of education in Ukraine (2023). URL: https://osvita.ua/news/data/90287/*
16. *Website of the Ministry of Education and Science of Ukraine. URL: https://mon.gov.ua/osvita-2/inklyuzivne-navchannya/statistichni-dani*
17. *Ukrainian refugees. Future abroad and plans for return. Analytical note. Center for Economic Strategy. (2024). URL: https://ces.org.ua/ukrainian_refugees_third_wave_research/*
18. *DiXi Group. Analytical center in the field of energy and sustainable development. (2025). URL: https://dixigroup.org/*
19. *Ukrinform. The government has allocated ₴150 million to programs for returning Ukrainians from abroad. (2025). URL:https://www.ukrinform.ua/rubric-society/3966912-urad-vidiliv-150-miljoniv-na-programu-povernenna-ukrainciv-z-zakordonu.html*
20. *Human capital development. Government portal. URL: https://www.kmu.gov.ua/reformi/rozvitok-lyudskogo-kapitalu?utm_source=chatgpt.com]*

Urszula Szczytyńska
ORCID: https://orcid.org/0009-0000-3980-2113
Master of Economics, Assistant
Faculty of Technical and Economic Sciences
State Vocational University of prof. Stanisław Tarnowski in Tarnobrzeg (Tarnobrzeg, Polska)

FINANCING BUSINESS ACTIVITIES – LEGAL ASPECTS, TAX SHIELDS

https://doi.org/10.5281/zenodo.15709948

Abstract
In this article, own and external sources of financing have been presented, together with factors chich have influence on shaping the structure of these sources. On the example of a chosen enterprise, a simulation has been conducted regarding a choice of an optima variant for growth in value of assets (expansion of activities) ta king account of the assumed solvency situation. The analysis of the presented variants of financing indicates, that at maintaining the borders of predefined liquidity risk, national use external capital may increase the profitability of own equity. This would also allow for ta king advantage of the tax shield effects.

Keywords: *capital structure, financing sources, tax shield.*

Introduction

Running a business requires accumulating property resources. Expenditures related to financing individual assets can be financed from two basic sources: internal and external. Their amount is included in the liabilities of the balance sheet, and the structure reflects the diversification of the sources of the company's assets. Taking into account the owner ship aspect, there are own liabilities internal and external and external liabilities (obligations).

Equity is funds contributed and made available to the enterprise by its owners. It opens up the possibility of economic activity for the enterprise and constitutes the basis for its legal and economic independence (Dębski, 2013, p. 383). It is own long-term source of financing the business, a guarantee of the company's stability and its

creditworthiness, and gives freedom of making decisions. Equity is most often defined as the equivalent of funds transferred to the entity indefinitely by its owners. They may come from external sources, constituting the capital contribution made by the owners, or internal sources, constituting funds allocated by the entity in the course of its operations when the owners resign from these funds.

'External capital is the sum of financial resources made available to the enterprise by creditors' (Dębski, 2013, p. 384). This capital expands the financial base of the enterprise, creates opportunities to expand its operations, but requires return within a specified period of time. For its disposition, the company pays a price, which is nominal interest, commissions and other fees. On this account, it can count on certain tax benefits resulting from the tax shield (Dębski, 2013, p. 384).

Materials and Methods

The article is devoted to the issue of financing business activities and the possibility of using the costs of external capital to plan its structure. The aim of the publication is to present the basic sources of asset financing and the impact of the benefits that the company obtains by using foreign capital to financing business activities. To achieve the adopted goal, a hypothesis was formulated that to ensure the efficiency of capital use, it is necessary to design their optimal structure. Assuming certain risk limits, the company can take advantage of the tax shield effect and obtain a positive impact of the cost of external capital on the profitability of equity capital. The hypothesis was adopted for a situation in which there is a need to maintain an increase in sales of finished products, which requires an increase in the value of capital assets.

The research method used is the analysis of the literature on the subject, legal regulations and simulation of the optimal structure of asset financing in the XZ production company. Ratio analysis was used to present the financial situation of the audited entity in 2016-2020.

Equities determine the company's balance sweet value and they are the measure of its financial strength and the basis of the assessment of its property and financial situation. They provide security for creditors to receive the amounts due to them, while ensuring that the entity can continue its operations. Traditionally,

equities capital are divided in to two basic groups (Kumor, Poniatowska, 2017, p. 123): entrusted capital (invested, initial capital) and self-financing capital. Entrusted capital is capital contributed by owners, enabling them to start and run a business. Capital contributions may be made in the form of contributions in kind or in cash. In the case of a sole proprietorship and a civil partnership, general partnership, limited liability, commandite partnership, their amount is not regulated by law. In limited joint-stock partnerships and capital companies, the minimum amount of initial capital is determined by law in order to protect the security of economic transactions and the interests of creditors. In Poland it is: in a limited liability company 5000 zloty in a simple joint-stock company 1 zloty, in a joint-stock company 100000 zloty, in a limited joint-stock partnership 50000 zloty. During its operations, the company replenishes its core capital from internal sources, creating self-financing capital and from external sources. First of all, the replenishment of the entrusted capital is being made by leaving the produced profit to the company's disposal. In capital companies, this most often takes the form of creating capital reserves and supplementary capital (obligatory in joint-stock companies). The decision on this matter is made by the shareholders (partners), taking into account the rate of return, the level of profitability and the shareholders' policy regarding the distribution of profit. In the state-owned enterprise and a cooperative, an enterprise fund and a resource fund are created, respectively. The profit retained in the enterprise in this way does not involve any costs or changes in existing ownership relations. Self-financing capital created from profit has a protective function towards the entrusted capital. They are mainly used to cover the book loss, financing research and development works, paying dividends and development of the company. Increasing core capital from outside is an alternative to long-term liabilities and is aimed mainly at increasing the entrusted capital. Increasing core capital from outside is an alternative to long-term liabilities and is aimed mainly at increasing the entrusted capital. It may take the form of: payments by existing shareholders for new shares; payments from new shareholders; increasing the nominal value of existing shares; owners' subsidies (in partnerships); conversion of public or civil liabilities (increase as part of the

company restructuring process); company mergers (Engelhardt, 2017, p. 157-158), or by 'allowing capital offered by high-risk funds called venture capital funds to participate in the company' (Bień, 2018, p. 158). The choice of a specific method of obtaining it involves the calculation of the optimal capital structure. When choosing this financing option, the company must take into account the following factors:

- increased equity as a result of acquiring new shareholders (venture capital representatives) will change ownership relations and reduce the profitability of equity capital (e.g. profit/1 share) in the initial period;
- he increased equity, the enterprise will use without paying interest on it, but it must take into account that shareholders will expect dividends' payments, which will reduce the retained profit;
- partners' subsidies, additional capital contributions of owners (partners) must be supported with a 'credible program for restructuring the enterprise's operations' (Bień, 2018, p. 158) and are possible provided they are physically owned (obtained).

The equities remain in the enterprise indefinitely. Shareholders (partners, shareholders, etc.) can count on their return only upon its liquidation. However, it is possible to reduce them, among others, due to: limiting the activities of the enterprise in order to prepareit for liquidation, dividing the company without its formal dissolution, withdrawing part of the capital in order to transfer it to another venture, reducing the nominal value of stocks or shares, extinguishment of the part of the stocks or shares, merging stocks or shares, covering the incurred book loss (Engelhardt, 2017, p. 164-165).

Foreign capital is repayable on dates agreed with creditors and is renewable. In the opinion of Wiesław Dębski (Dębski, 2013, p. 388), 'its presence in the enterprise is practically constant, but their amount and structure may change'. They are mostly divided into long-term and short-term. To the sources of long-term external capital include:

- long-term loans – regulated by banking law, granted for the purchase of tangible fixed assets or financial investments. The condition for receiving them is a business plan for the project to be financed approved by the bank, contribution of own share, analysis of credit worthiness and possession of appropriate

security. The granted long-term loan can be used once (e.g. purchase of a fixed asset) or gradually (implementation of a complex investment). The loan agreement concluded with the bank specifies, among others: the purpose for which it is to be used, the repayment period, the interest rate and the conditions for its change, the principles and deadlines for repayment, the method of security, the scope of the bank's powers related to the control of its use, the amount of the commission;

- long-term loans – regulated by the provisions of the Civil Code, granted by banks or other business entities. Their advantage is, among others: the fact that there are no requirements regarding the purpose of their use, the lender has no right to monitor the debtor's financial standing, there is no limit on the concentration of receivables (excluding bank loan) and various forms of payment (interests, share in the borrower's profits, non-monetary benefits). When calculating the cost of its use, you should take into account the fact that not all loan interests are costs of obtaining income (in the case of a loan agreement, there is a provision limiting the phenomenon of thin capitalization);
- bond issue, which may be a private or public issue. Bonds are securities confirming the issuer's obligation to its owner for a specific nominal amount plus interest. The debt repayment date (maturity date) and the amount of interest paid are predetermined. They may be bearers' or registered securities. It is a form of debt incurred in a non-bank system;
- leasing – is the putting into use by one party (leasing provider) to another party (lessee) an item to use for a specified period of time and for a fee specified in the contract. It is a kind of loan in kind in which the user can include part or all of the payment in costs, reducing the tax burden. It provides the possibility of financing without initial fees, and is particularly beneficial in conditions of rapid technological changes (Rutkowski, 2007, p. 341-344);
- securitization is the issuance of debt securities secured by receivables. Its essence is the conversion of receivables arising from e.g. loans granted, leasing receivables, fees into cash through the issue of securities. A specialized company takes over its financial assets from the company initiating securitization,

which will be used to redeem the issued securities. These assets are rated by a rating agency. This is a form of off-balance sheet financing, 'which means that the company does not worsen its debt ratios, i.e. does not increase credit risk, which results in an increase in the costs of obtaining capital from external sources' (Dębski, 2013, p. 295). For the companies with high ratings, the securitization may be a cheaper source of financing compared to a bank loan.

Short-term sources of financing are those which maturity date expires within one year from the date of their creation. Their basic forms are: short-term bank loans, permanent company liabilities, receivables factoring, short-term debt securities. Short-term loans are used to finance the increasing demand for financial resources resulting from the intention to expand production. They are also the restocking of own working capital intended to finance current operations. The cost of such a loan is the current interest rate, commissions and other banking fees charged by the bank at the time of granting. They may take the form of an overdraft or a credit account loan. Fixed liabilities are a natural consequence of the difference between the moment of their creation and the date of payment, resulting from the current conduct of business activities (payment for materials/goods, payment of remuneration, settlement of liabilities to public law institutions). The deadlines for regulating them are set by law, internal regulations or negotiated with suppliers. These types of liabilities usually do not bear interest. Factoring is a form of short-term financing of the supply of materials, goods and services by a specialized financial institution. It is based on the assignment (sale) of the factorer's receivables. The factoring company (the selling company) ensures that the receivable is converted into cash before its due date, financial liquidity and faster capital turnover. The cost of using this form of financing are commissions charged by the factorer. Short-term corporate debt securities are a form of financing current operations through the money market. Buyers provide a short-term loan to the issuer. The issuer returns it by redeeming it in a specified future period, at nominal value. Debenture notes are issued through an agent (e.g. bank brokerage office, bank), in a dematerialized form (bonds, bills of exchange or debt incurred based on the provisions of the Civil

Code). They are sold at a discount, which means that the issuer receives the proceeds of funds minus the servicing costs and commission charged by the agent. They are a cheaper and more flexible form of obtaining funds compared to a bank loan.

The conditions for choosing the structure of financing the company's assets and the classification of asset sources are the subject of many analyses and studies. The company can freely shape its capital structure, and this choice may be influenced by factors related to the macro-environment and internal conditions. External factors include, for example: the level of inflation, the tax system, government policy, and the specifics of the industry. Internal factors include: the company's operational and investment needs, the strategic goal of the operation, its size, organizational and legal form, the type of assets held, the type of production, profitability, and the current capital structure. When choosing financing sources, the company should also take into account the consequences of using individual sources (e.g. the level of insolvency risk), the management's willingness to take risks, and the target capital structure at a given time. In this context, the division of factors introduced by A. Duliniec (2021, p. 95-100) is justified, classifying them into those that encourage and discourage increasing debt. According to the author, the factors that encourage taking on debt include: interest tax benefits (value of the tax shield), the financial leverage effect (growth of equity due to the involvement of external capital), counteracting over-investment, maintaining control over the enterprise by current owners, low market interest rates. According to A. Duliniec, the factors discouraging taking on debt include: the risk of bankruptcy, the costs of financial difficulties, high market interest rates, maintaining the ability to pay dividends, maintaining the ability to incur liabilities. The multitude and diversity of these factors make the issue of shaping the financing structure of an enterprise's operations extremely complex and difficult.

This article attempts to examine the impact of the cost of foreign capital as one of the factors determining the choice of capital structure when expanding the company's operations, requiring an increase in assets. In such a situation, it is necessary to look for 'an optimal capital structure that allows for maximizing the profitability of equity capital while maintaining financial liquidity and the ability

to service debt (Bień, 2018, p. 201). According to W. Bień, the starting point for calculating the optimal structure should be to determine the upper limits of financial risk, e.g. the general liquidity ratio, the level of asset debt, taking into account the specific operating conditions of the enterprise. At the same time, the company should comply with the principle of proper financing of fixed assets (at least the silver balance principle). According to W. Bień, 'financial flexibility' (Bień, 2018, p. 202) (the ability to use alternative sources of financing). It is still needed to determine the optimal financing structure. It should also be taken into account that as the share of foreign capital in financing the company's assets increases, the risk of loss of liquidity increases. This may occur when there is a need to pay interest, when profits decrease (loss is incurred), or in situations caused by events that are difficult to predict.

A tax shield is the benefits that an enterprise obtains due to the reduction of its tax burden. There are many classifications of shields in the literature on the subject. From the point of view of the topic of the article, the most important division is interest and non-interest shields (Felis, 2009, p. 52)The interest shield allows you to obtain tax benefits that result from including the costs of foreign capital (e.g. interest, commissions, loan fees, costs related to the issue of bonds, costs of leasing fees) to tax deductible costs and thus reducing the income tax base). The interest shield allows you to obtain tax benefits that result from including the costs of foreign capital (e.g. interest, commissions, loan fees, costs related to the issue of bonds, costs of leasing fees) to tax deductible costs and thus reducing the income tax base). The interest-free shield allows you to achieve benefits related to, among others: with reducing the tax base by making depreciation deductions, using reliefs, and the possibility of settling losses incurred in previous years.

Results and Discussion

Assumptions: Company XY has been operating on the Podkarpacie market (Tarnobrzeg subregion) for 6 years. It runs production activities (fruit and vegetable processing). In the analyzed period, the company employs 32 employees, including 6 in non-manual positions. The company has assets worth PLN 9,301,502, of which approximately 47% is fixed assets. It is entirely financed by

permanent capital. The company's assets are financed in 54% by liabilities. Long-term liabilities (investment loan and financial leasing) constitute 20% of external financing sources. Their cost is 7%. The cost of short-term liabilities (working capital loan and loan) is 10%. Fixed liabilities amount to PLN 667,700. The company has financial flexibility. Selected indicators of the company's analysis are presented in Table 4.9.

Table 4.9

Selected indicators of the financial analysis of the XY production company for the years 2016-2020

Indicator	2016	2017	2018	2019	2020
Net sales profitability ratio (%)	2,00	3,66	3,75	3,85	3,62
Total debt ratio (%)	35,00	40,50	42,30	48,50	54,00
Overall liquidity ratio	2,30	1,60	1,15	1,15	1,22
Return on equity ratio (%)	9,10	10,16	11,05	9,06	8,17

Source: own study based on reporting data of the audited entity. Calculations according to Jerzemowska M., Economic analysis in the enterprise, PWE, Warsaw 2018, pp. 160-167, 180-182, 299-305.

Based on the analyzes performed, it can be concluded that the net sales profitability ratio increased until 2019 (i.e. the period of the Covid 19 pandemic), and in 2020 there was a decrease of 0.23 percentage points. In turn, the overall debt ratio increased in subsequent years by: 4.5%, 1.8%, 6.2%, 5.5%. The general liquidity ratio decreased unfavorably from 2.3 to 1.15 in 2019, and in 2020 it increased by 0.07. Return on equity increased by 1.06% and 0.89%, respectively, until 2018. Since 2019, it has decreased by 1.99% and 0.89%.

Assumptions: The company is considering increasing sales, which may result in an increase in operating profit by 20%. However, this will require an increase in assets by 3 000 000 zloty. (fixed assets). The company does not want to lose financial liquidity (ultimately wants to achieve a current liquidity level of 1.6). It does not want to increase the debt level above 67%, and wants to maintain a safe level of financing fixed assets with permanent capital. Increasing sales will result in an increase in fixed liabilities by 20%. Liability interest rates may increase by 1 percentage point due to high debt, but they will be lower than the property yield rate.

The calculation enabling the selection of the optimal capital structure, taking advantage of the tax shield effect and the possibility of increasing the return on equity capital is presented in Table 4.10.

Table 4.10

Calculation of variants of financing the increase in assets with equity and external capital of the XY production company

Outgoing data 2020 year		Variant 1	Variant 2	Variant 3	Variant 4
Assets	9301502,00	12301502,00	12301502,00	12301502,00	12301502,00
Fixed assets	4412868,00	7412868,00	7412868,00	7412868,00	7412868,00
Current assets	4888634,00	4888634,00	4888634,00	4888634,00	4888634,00
Capitals	9301502,00	12301502,00	12301502,00	12301502,00	12301502,00
Equity	4278691,00	7278691,00	4278691,00	4278691,00	4627922,60
Long term liabilities	1000111,00*	1000111,00*	4000111,00***	1000111,00*	4618183,20***
Short term liabilities with interest	3355000,00**	3221460,00**	3221460,00**	6221460,00****	2254156,20**
Short-term liabilities without interest (fixed)	667700,00	801240,00	801240,00	801240,00	801240,00
Operating profit	836658,37	1087665,80	1087665,80	1087665,80	1087665,80
Interest cost on liabilities - short-term - long-term	335500,00 70007,77	322146,00 70007,77	322146,00 320008,88	684360,60 70007,77	225415,62 369454,65
Gross profit	431150,60	695512,03	445510,92	333297,43	492795,53
Income tax. (Simplistically, it is as summed that all costs are tax-deductible costs and all revenue us are included in the tax base; income tax 19%)	81919,00	132147,00	84647,00	63326,00	93631,00
Net profit	349231,60	563365,03	360863,92	269971,43	399164,53
Return on equity ratio (net profit/equity) x 100 (%)	8,16	7,74	8,43	6,31	8,63
Return on assets ratio (net profit/assets) x 100 (%)	3,75	4,58	2,93	2,19	3,24
Liquidity ratio (current assets/short-term liabilities)	1,22	1,22	1,22	0,70	1,60

Total debt ratio (total liabilities/total assets) x 100 (%)	54,00	40,83	65,22	65,22	62,38
The level of financing of fixed assets with permanent capital (constant capital/fixed assets)	1,20	1,12	1,12	0,71	1,25

*Source: own study based on reporting data of the audited entity and accepted submissions. Calculation according to W. Bień, Enterprise financial management, Difin, Warsaw 2018, pp. 200-207*cost 7%; **cost 10%; ***cost 8%; ****cost 11%.*

On the base of the conducted simulation, it can be concluded that:

- replenishing the assets entirely from external sources (capital contributions from existing partners or acquiring new ones – variant 1), contributed to maintaining current liquidity at the current level, but resulted in a reduction in the rate of return on equity compared to the initial state from 8.16% to 7.74%. In this financing variant, fixed assets are financed with constant capital, but the company does not benefit from the tax shield effect;
- full replenishing of assets with long-term liabilities (variant 2), causes their interest rate to increase from 7 to 8%. The debt level increases to 65.22%, but is within the limit of 67%. This variant allows you to maintain the current liquidity at a boundary level. Fixed assets are financed with permanent capital. Return on equity increases to 8.43%;
- variant 3 takes into account the use of only short-term debt, which in the case of acquiring fixed assets means that the fixed assets lose a safe source of financing with permanent capital. The company makes the most of the effect of the interest tax shield, but loses current financial liquidity. This variant has the lowest return on equity (6.31%);
- in variant 4, the company uses the retained profit, ensures the optimal level of debt and overall liquidity (1.6). Option 4 ensures the highest level of return on equity (8.63%) and the highest ratio of financing fixed assets with constant capital (1.25).

Conclusion

A safe source of financing the company's assets is equity from external and internal sources. However, increasing wealth only from such sources reduces the effectiveness of their use. The use of external sources improves the profitability of equity capital and enables the use of interest tax shields, but may result in a loss of financial liquidity. The recommendation for the analyzed company is to implement the 4th financing option. This solution will maximize the return on equity capital and ensure the assumed level of overall liquidity. The highest level of use of the interest tax shield is in option 3, but it does not ensure financial security.

The calculation of asset financing options was carried out in a static approach. If the company's management board decides to use it in planning an investment project, it must take into account the need to verify it with changing external factors (e.g. level of inflation, interest rates) and internal factors (investor behavior, decline in sales). When analyzing options for financing the growth of fixed assets, an additional depreciation tax shield may be taken into account. Raising capital without following the principles of planning and optimization seems risky.

References:

1. *Bień, W. (2018). Corporate financial management. Warsaw: Difin.*
2. *Chojnacka, E. (2021). Capital structure of joint-stock companies in Poland in the light of the theory of the hierarchy of financing sources. Warsaw: CeDeWu.*
3. *Chojnacka, E., Kołosowska, B., Tokarski, A., Tokarski, M. (2020).Strategies for financing enterprise operations, Warsaw: Non-obvious Publishing House.*
4. *Czerwonka, L. (2017). Capital structure of Polish companies in the light of selected theories. Contemporary Economy No. 1.*
5. *Dębski, W. (2013). Corporate finance management. Warsaw: Polish Scientific Publishing House.*
6. *Duliniec, A. (2015). Selection of financing sources and the optimal capital structure in an enterprise. Scientific journals of the University of Szczecin No. 855 Finance, Financial Markets, Insurance No. 74 vol. 2 (2015).*
7. *Duliniec, A. (2011). Enterprise financing. Strategies instruments. Warsaw: Polish Economic Publishing House.*
8. *Elgelhardt, J. (2017). Economics of enterprises. Warsaw: CeDeWu.*

9. *Felis, P. (2009). Tax aspects of enterprise financing sources. Dilemmas in shaping the capital structure of enterprises, ed. J. Ostaszewski, Warsaw School of Economics.*
10. *Jerzemowska, M. (2018). Economic analysis in the enterprise. Warsaw: Polish Economic Publishing House.*
11. *Kumor, I, Poniatowska, L. (2017). Equity and their importance in maintaining a going concern. Scientific works of the Wrocław University of Economics.*
12. *Pomykalska, B., Pomykalski, P. (2017). Financial analysis of the enterprise. Warsaw: Polish Scientific Publishing House.*
13. *Rutkowski A. (2007). Financial management. Warsaw: Polish Economic Publishing House.*
14. *Act of 23rd April, 1964, Civil Code (Journal of Laws 1964, No. 16, item 93, as amended).*
15. *Act of 29th August, 1997, Banking Law (Journal of Laws 1997, No. 140, item 939, as amended).*
16. *Act of 15th September, 2000, Commercial Companies Code (Journal of Laws 2000, No. 94, item 1037, as amended).*

Chapter 5

STRENGTHENING INTERNATIONAL PARTNERSHIPS TO TACKLE CROSS-BORDER CHALLENGES AND ADDRESS GLOBAL ECONOMIC, SOCIAL AND ENVIRONMENTAL ISSUES

Mgr. **David Březina**
ORCID: https://orcid.org/0009-0001-8184-8104
PhD Student at the Department of Management
VSB-Technical University of Ostrava
(Ostrava, Czech Republic)

MECHANISMS FOR IMPROVING PUBLIC ADMINISTRATION AND DEVELOPING OF TERRITORIAL COMMUNITIES IN MORAVIAN-SILESIAN REGION, USING CRITICAL THINKING

https://doi.org/10.5281/zenodo.15709954

Abstract
This paper deals with the importance of critical thinking in business decision making and in how can public administration could use critical thinking, especially as a means of attracting young people. Beyond the main explanation of how the ability to analyze information, evaluate arguments and recognize logical fallacies can help entrepreneurs better face challenges and maximize opportunities, the paper aims to highlight the added value of effective creative thinking. The author presents specific techniques and strategies for developing critical thinking skills, including data analysis, brainstorming methods and team discussions.

Keywords: *public administration, critical thinking, development, Moravian-Silesian Region.*

Introduction

This paper deals with the use of critical thinking in the context of possible recruitment of young people in the Moravian-Silesian region

and the overall use of critical thinking in the team. The explicit aim of the paper is to point out the necessity of critical thinking in the recruitment of young people and subsequently in the setting of job opportunities, especially in the Moravian-Silesian region, which has long been struggling with an outflow of young talented people. The main research question for this paper is whether it is possible to apply critical thinking methods in recruiting young people in a situation where the region is facing a brain drain. The choice of the topic is related to the current and most pressing problem in the field of entrepreneurship in the Moravian-Silesian Region, i.e. the already mentioned outflow of young people and the ineffective way of recruiting them to companies/enterprises and other institutions in the Moravian-Silesian Region. The main contribution of this paper is a recommendation for the use of critical thinking for possible recruitment of new employees.

1. Critical thinking

Critical thinking, as described by Masaryk University in Brno, is critical thinking that is independent, autonomous thinking; it is thinking that poses questions and problems while seeking thoughtful justification. Last but not least, it is thinking in society, which will be central to the following description of how it is used by businesses to recruit young people. In a random selection of courses to teach critical thinking, it is stated that a person interested in entrepreneurship or interested in getting a job in a dynamic management environment cannot do without so-called critical thinking. For a better definition of what is involved in the critical thinking that individual candidates applying for business positions must possess include:

- Fast decision making with minimal information.
- Pointing out real problems and distinguishing them from perceived ones.
- Verify information and draw from multiple sources.
- Refute false information and reasoning fouls in decision-making.
- To create better conditions in the team for setting up effective cooperation.
- Working with an uncertain future.

But what is the exact definition of critical thinking? Of course, there are many definitions of critical thinking, so this paper presents three basic ones for a better understanding and subsequent grasp in the text.

"Critical thinking is the intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing, or evaluating information acquired or created, using observation, experience, reflection, reasoning, and communication, as a guide to belief and action. In its basic form, it is based on universal values such as: clarity, accuracy, consistency, relevance, persuasiveness, depth, breadth and fairness of thought" (Scriven, M., Paul, R., 1987 in Novotná, J., Jurčíková, J., 2012, p. 62) (Grecman, 2020).

"Critical thinking... is the intellectually trained process of actively and competently conceptualizing, using and synthesizing and/or evaluating reflections of experience (experiencing), inference or communication as a guide to belief and subsequent implementation. Critical thinking is the disciplined activity of evaluating arguments or propositions and making inferences that can lead to belief formation and implementation" (Huitt, W., 1998 in Hally T., 2011) (Grecman, 2020).

"Critical thinking means grasping an idea, examining it rigorously, comparing it with opposing views and with what we already know about the topic. Critical thinking is about being inquisitive, using different strategies to find out information, asking questions and systematically seeking answers, managing with healthy scepticism, finding alternatives to the usual established procedures, and questioning ready-made judgments. It refers not only to doubting but also to arriving at decisions, taking positions and being able to defend one's opinion rationally while carefully considering the arguments of others and examining the logic of those arguments" (Klooster, D. in Grecman, H., Urbanovska, E., Novotny, P., 2000, p. 8) (Grecman, 2020).

Critical thinking is therefore not an innate gift, but it is a skill that can be learned and then strengthened. However, it is not just the ability to question everything at all times and to approach individual solutions and information with scepticism, it is an active and constructive process that is fully applied in business decision-

making. The essential elements of critical thinking that together shape a holistic approach in the decision-making process include:

- Analysis of information.
- Evaluation of evidence.
- Logical reasoning.
- Recognition of prejudices.

Analysis of information is an essential element for a broader understanding of the problem, but without evaluating the evidence, i.e. the different approaches to a solution and using critical thinking, the analysis itself is often worthless in the field of management. Recognition of biases is important in relation to decision-making based on internal emotions, which should be set aside in favour of logical reasoning.

1.1. Critical thinking and why is it important

The development of critical thinking can be applied on a daily basis, for example, through a critical approach to commercial messages, advertisements, their comparison, including the comparison of popularization articles. But even the development of critical thinking and its use in practice is not without methods, many of which use what is called lateral thinking[3] . The use of lateral thinking can be regularly encountered in interviews or meetings with the HR department of companies and businesses. Lateral thinking uses the involvement of elements of creativity and individual creativity, and the emphasis is not purely on mathematical thinking in solving given problems or complex situations, but there is an emphasis on thinking outside the box. Meanwhile, thinking outside the box is central to critical thinking in business and decision-making, and job applicants are often questioned in interviews about the field and their skills (MUNI, 2023).

The creative technique includes the aforementioned brainstorming technique, which is widely used in companies. Brainstorming is one

[3] *Lateral thinking is essentially creative thinking and a way of innovating to find new solutions that do not follow convention. Simply put, it is not a solution that can only be arrived at by using logical procedures. There are several examples of creative lateral thinking techniques; it can be brainstorming, hyperlink writing or mind mapping.*

of the best known methods for stimulating critical and creative thinking. The main objective of brainstorming is to generate as many thoughts and ideas as possible in the team, leaving out any criticism for the time being and any scepticism about whether such ideas are feasible and under what assumptions. This activity therefore has the effect of loosening the imaginary walls of creative thinking of individual employees and allowing their creativity to develop. The brainstorming activity[4] is divided into three parts, namely the creative, discussion and then evaluation part (Cervinka, 2020, p. 22).

To further develop critical thinking skills that are used for solving various problems and situations, the 5Wa1H method is used. The main objective of this method is to answer 6 basic questions that allow defining the different areas under investigation. Thus, the 5Wa1H method helps to analyze the problem under investigation and provides the participants with a comprehensive view of the subject under investigation. Once the method has been applied, the problem under investigation is then easier to grasp and ready for further analysis or to set up a system to deal with the problem. The method is used, for example, in research design, etc.

Sample questions of the 5Wa1H method:

1. Who/Whom? – What is the person behind the proposal, who is the author?
2. What/What? – What is the core of the issue? What is the main object of investigation? What is the aim of the research, article or systematic review?
3. Where/Where? – Where can we find the information we need? Where will the research take place? In which institutions is the topic topical?
4. When/When? – What time frame are we in? When will the first steps towards a solution start to be implemented?
5. Why/Why hasn't it been addressed yet? Why hasn't a theory or a way to solve the problem emerged? Why is the problem current and important?

[4] *The difference in the effectiveness of brainstorming depends on whether it is done by individuals or in a group. Individual brainstorming seems to be more effective when it generates more ideas, which are also more feasible, than brainstorming ideas generated by a group of people (Cervinka 2020, p. 22).*

6. How can we solve the problem? What methods can we use to solve the problem? How can we view the problem/what narrative can we use? (MUN, 2023).

2. Critical thinking in business and management

In business, critical thinking is generally used on a daily basis, starting with the most basic activities such as selecting suppliers. Critical thinking is intended to help in a better form of market analysis, for example, what is the quality of the products supplied, or how to set up the export of own goods through targeting certain groups. Another activity in business where critical thinking can be used is certainly problem solving. How does management deal with a given problem? How can the rest of the team be involved in solving it?

Critical thinking aims to first analyse the problem, whether using the brainstorming/method5Wa1H methods mentioned above, for example, and then to break it down into sub-pieces and ultimately to find the best suitable solution.

Critical thinking in teams and especially in business teams is now taken for granted. Critical thinking in a team means finding together new innovative ways to achieve better results/success in the market. However, apart from its importance in problem solving or as a major tool for innovation, critical thinking is important in decision making. But how to achieve the development of critical thinking in a team at all if we recognize that it is not an innate ability? One of the main ways to do this is to link critical thinking itself to team communication, management and the organisation of work itself. The basis for developing critical thinking in a team is, of course, communication and how it is set up, followed by the organisation of the team and the proper management of the resources available. The given development of critical thinking is of course applied in enterprises and companies where old-fashioned settings do not prevail.

But how to set up the right communication in the company/enterprise to give room for critical thinking?

- Creating a platform for peer-to-peer discussions.
  - Without a suitable platform for discussion, it is impossible to share problems and come up with innovative solutions. The platform can be, for example, a team meeting or 1on1 meetings

with employees.

- Equal access for all employees.
  - In developing critical thinking, it is necessary to maintain equal access for all employees so that, for example, introverted employees are not overlooked by extroverted ones.
- The limits of the debate.
  - Setting rules and boundaries for debate not only prevents conflict situations, but establishes a measure of control and direction for debate.
- Tolerance to error .
  - Critical thinking carries with it a risk where new ideas can lead to dead ends, but this can often result in opportunity.
- Management decisions in context.
  - In order to communicate individual decisions, management must inform employees and put them in the context of why they were made or under what conditions (Forbes, 2023).

We have mentioned critical thinking, its methods, or its development in teams above, but how can critical thinking be helpful in recruiting young people? When asked what is the difference between a financially highly successful business and an average one, the survey answered unequivocally that 70% of the difference is in the development of their staff. Thus, successful businesses use nurturing human capital to help their employees be more productive. Creativity and employees with critical thinking leading to innovation are becoming an important aspect for businesses to build competitive advantage.

When recruiting young employees, the first thing to determine is what direction the company wants to take, whether it is an external or internal selection procedure for the vacancy. Both have their advantages and disadvantages. External selection is often necessary to support the development of a given company, in its possible reorganisation, to possibly change the corporate culture. Internal recruitment, on the other hand, addresses the internal development needs of the enterprise, which entails the need for training (Planning, Recruitment and Selection, 2021).

3. Recruiting young people in Moravian-Silesian Region

However, this paper deals with the critical thinking for the recruitment of young people and the reason why this part of the population was chosen for possible recruitment into companies is based on data from the Labour Office and also the Regional Office of the Moravian-Silesian Region. Both documents deal with the problem posed by the demographic situation in the Moravian-Silesian Region, where the number of young people has decreased by 29 002 since 2001. Such a decline in young people is reflected in the current average age of the Moravian-Silesian Region's population, which is 43.3 years.

Table 5.1

The development of the population of permanent residents in the Moravian-Silesian Region

Indicator (total number)	As of December 31. 2020		As of December 31. 2021		As of December 31. 2022	
	Total	Women	Total	Women	Total	Women
Inhabitants	1 192 834	608 761	1 177 989	599 268	1 189 674	606 890
Inhabitants (years 0 – 14)	183 769	89 494	180 618	88 027	182 383	88 762
Productive years inhabitants	765 375	375 511	751 965	266 216	758 072	371 016
Average age of inhabitants	43,0	44,6	43,3	44,9	43,3	44,9

Source: demographic trends in the Moravian-Silesian Region (Labour Office, 2024)

Other problems of the Moravian-Silesian Region include the lack of university-educated professionals not only from the Moravian-Silesian Region, but also from other parts of the Czech Republic. Neither the Region nor the enterprises are able to attract young and qualified workforce so that the necessary development or maintenance of the current state of affairs can take place. At the same time, in addition to the outflow of young people from the region who could otherwise form a skilled workforce, there is also insufficient development of small and medium-sized enterprises and a low level of investment compared to the needs of structural changes in the Moravian-Silesian Region (Labour Office, online). As regards the development of the number of self-employed persons, there has been a slight increase over the last year, mainly due to the implementation of instruments and measures of active employment policy of the Moravian-Silesian Region, see table below.

The results of the working groups at the Ostrava City Council,

which also dealt with the outflow of young people from the Moravian-Silesian Region, revealed an insufficient number of quality jobs for employees that would not only develop the potential of graduates, but also act creatively and innovatively.

Table 5.2

Self-employed persons

Indicator (total number)	As of		12/2023 – 12/2022	
	31.12.2022	31.12.2023	absolutely	%
Active self-employed persons	**99 403**	**101 544**	**+ 2 141**	**+ 2,2**
Main activity	57 924	59 292	+ 1368	+ 2,2
Secondary activity	41 479	42 252	+ 773	+ 1,9
Self-employed insured persons	65 345	66 925	+ 1580	+ 2,4

Source: number of self-employed persons in the Moravian-Silesian Region (Labour Office, 2024)

The decline in employment and the overall outflow can also be seen in the following graph from the Labour Office of the Czech Republic.

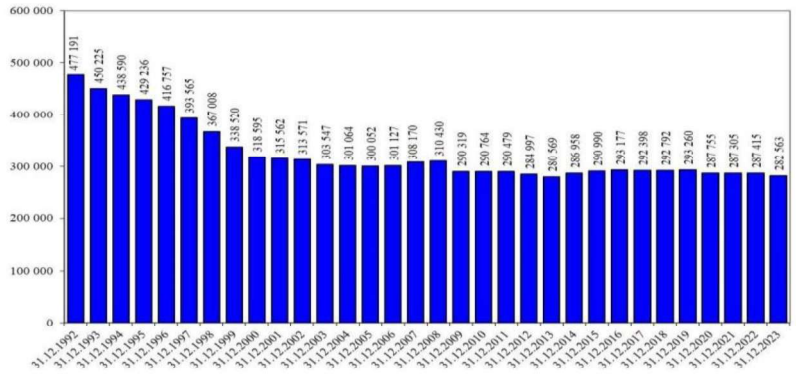


Figure 5.1 The development of employment in monitored companies of the Moravian-Silesian Region with 26 or more employees since 1992

Paradoxically, the strengths of the Moravian-Silesian Region in the area of employment are listed by the Labour Office of the Czech Republic:

- Existence of more suitable buildings and land for new investment projects as well as old industrial premises equipped with infrastructure, the so-called "brownfields", with the possibility of their use for the development of new business activities.
- Functioning and upcoming other industrial zones; gradual development of business activities of companies operating in these zones, technology parks, establishment of research and innovative incubators and modern industrial plants.
- Certain potential of skilled, or in many fields well retrainable, workforce usable in the development of new economic activities.
- The Beskydy and Jeseníky Mountains – suitable areas for the development of tourism and service businesses (Labour Office, 2024).

The question what is the entrepreneurial activity and creative business environment in the Moravian-Silesian Region can be answered by the FactSheet2023/2024 of the Moravian-Silesian Innovation Centre, which deals not only with the brain drain from the region, but also with the support of creative entrepreneurship and support not only for start-up entrepreneurs in the Moravian-Silesian Region. As well as data from the Labour Office, the Moravian-Silesian Innovation Centre's document points to the Moravian-Silesian Region's lagging behind the South Moravian Region and the Vysočina Region in terms of the number of university graduates and spending on innovative research. The nature of the innovation ecosystem and its long-term prosperity are influenced by the so-called entrepreneurial intensity, which can be expressed by the number of active entrepreneurs in the region per 1000 economically active population[5].

[5] *Within the Czech Republic, the Moravian-Silesian Region is ranked among the three regions with the lowest number of entrepreneurs per population. It is only very slowly approaching the national average, but this indicates a slow but gradual improvement in the local business environment, which is an important factor for the future development of entrepreneurship in the Moravian-Silesian Region and its innovation (MSIC, online).*

However, such a precise measurement is not always possible, as comparisons are complicated by the difficulty of comparing different entrepreneurial activities (large firms x small firms) (MSIC, 2024).

One of the main recommendations for local entrepreneurs in the Moravian-Silesian Region is to stop the brain drain from the Moravian-Silesian Region and, on the contrary, to attract young

graduates through critical thinking. If one of the existing major problems in entrepreneurship and enterprise in the Moravian-Silesian Region is the brain drain and young people from the Region, it is critical thinking that can help in recruiting them.

Regions with a low supply of attractive jobs, or regions undergoing longer-term stagnation, face a brain drain of talented and especially creative people. In this situation, if we apply a simplified version of the 5Wa1H critical thinking method, we would be faced with the problem of recruiting young people to companies/firms, where the offer of the current job alone may not be enough for the applicants. The answer to the question from the 5Wa1H method of where to find information is more complex in this case. If a company/enterprise takes on the task of attracting young talented people as part of recruitment, they probably have to cooperate with institutions such as the Regional Authority or the Moravian-Silesian Innovation Centre directly, which has both public opinion surveys targeting young people who, although talented, have at some point left the Moravian-Silesian Region, or young people from other regions who can be attracted to the various benefits and advantages that working and living in the Moravian-Silesian Region provides. The opinion poll targeting young people also showed that a mere increase in salary is not entirely decisive for them to return or move to the Moravian-Silesian Region. The reasons included a good living environment, innovative and creative work and support from the employer in personal development, which are at least two of the three main aspects that entrepreneurs can adopt and offer to potential applicants when recruiting external employees.

An advantage for the Moravian-Silesian Region in recruiting young people to companies/enterprises is the strong involvement of the Regional Authority and other stakeholders in the region, such as the Moravian-Silesian Innovation Centre, which uses critical thinking as such in its strategies and actions focusing on young

people and preventing further brain drain from the region. As part of its regional development, the Regional Authority offers support for entrepreneurship in the Moravian-Silesian Region through various incentives or through subsidy titles aimed at supporting the innovation potential of SMEs (Regional Authority, 2024).

Conclusion

It is clear from the text above that the demographic trends in the Moravian-Silesian Region are relentless and the Region has long been struggling with a shortage of young and talented people, while apparently failing to attract either young people from other regions or young people who have left the Moravian-Silesian Region. This trend is not only detrimental to the region itself, which has to cope with the problem of depopulation of certain areas, but also to entrepreneurs, who are faced with a lack of qualified and creative workforce, thanks to which it is possible to develop business and maximise success on the market.

Among the first specific recommendations of this paper is, the use of critical thinking methods to analyse not only the reasons why young people leave, but especially the reasons why they would hesitate to move to the Moravian-Silesian Region. However, there are several methods to attract young and talented people to companies/enterprises in a region such as the Moravian-Silesian Region, but it requires the aforementioned involvement of critical thinking and, for example, the use of the 5Wa1H method, which can set a more precise strategy to target young people at a time when simply advertising a vacancy is not enough. Last but not least, it is also important to involve potential partners, such as the Moravian-Silesian Innovation Centre, which helps the business environment with a creative approach.

References:

1. *Červinka, Martin. (2020). Decision-making process in a company. Masaryk University. Reference: https://is.muni.cz/th/p65gn/BP_fina_lni__verze.pdf*
2. *Forbes (2023). How to foster critical thinking and constructive discussion in your team. Link: https://www.managementnews.cz/manazer/vedeni-lidi-id-147960/jak-v-tymu-podporit-kriticke-mysleni-a-konstruktivni-diskuzi-id-4311888*

3. *Regional Authority of the Moravian-Silesian Region (2024). Support for entrepreneurship in the Moravian-Silesian Region. Link: https://www.msk.cz/cs/temata/cestovni_ruch/podpora-podnikani-v-moravskoslezskem-kraji-3901/*
4. *MSIC.(2024). FACT SHEET 2023/2024. Link: https://ms-ic.cz/wp-content/uploads/2024/04/Fact-Sheet-2023-2024-Inovacni-ekosystem-v-MS-kraji.pdf*
5. *Muni. (2023) RWCT. Masaryk University. Link: https://kisk.phil.muni.cz/kreativita/temata/efektivni-a-kriticke-cteni/rwct*
6. *Muni. (2023) Tools and methods for developing critical thinking. Masaryk University. Reference:*
7. *https://kisk.phil.muni.cz/kisk4future/metody/nastroje-a-metody*
8. *Employment Service. (2024). Report on the labour market situation in the Moravian-Silesian Region, on the implementation of the ALMP in 2023 and the ALMP strategy for 2024. Link: https://www.uradprace.cz/documents/37855/910458/Rocni_MSK_2023.pdf*

dr **Anna Chochowska**
ORCID: https://orcid.org/0000-0002-4146-9951
State Vocational University of prof. Stanisław Tarnowski in Tarnobrzeg
dr hab. **Krzysztof Chochowski**
ORCID: https://orcid.org/0000-0003-3198-9619
prof. of the State Vocational University of prof. Stanisław Tarnowski in Tarnobrzeg
dr **Anna Zych**
ORCID: https://orcid.org/0009-0009-8836-3212
State Vocational University of prof. Stanisław Tarnowski in Tarnobrzeg
dr hab. **Igor Britchenko**
ORCID: https://orcid.org/0000-0001-9862-7554
Professor
University of the National Education Commission
(Tarnobrzeg, Krakow, Poland)

OPPORTUNITIES AND THREATS FOR THE DEVELOPMENT OF THE DEFENSE INDUSTRY IN POLAND

https://doi.org/10.5281/zenodo.15709969

Abstract
This review article presents the issues regarding the opportunities and threats for the development of the defense industry in Poland. It discusses, among other things, the state of the domestic defense industry, indicates opportunities and threats to its development, as well as the general assumptions of the Technical Modernization Plan of the Armed Forces of the Republic of Poland. In addition, it defines the essence of agreements concluded with entities of the domestic defense industry, namely offset, framework and implementation agreements. It also analyzes the sources of financing of agreements concluded for the purpose of modernization and re-equipping not only the Armed Forces of the Republic of Poland but also other formations guarding public security and order, such as the Border Guard.
The entire discussion ends with conclusions, the implementation of

which may contribute to optimizing the condition of the domestic defense industry, as well as improving the security of the state and the effectiveness of the Polish Army.
This article is based on, supplementing and expanding on, the earlier study by A. Chochowska, K. Chochowski, A. Zych, I. Britchenko entitled Prospects for the development of the defence industry in Poland, published in "Politics & Security" 2024, Vol. 10, No. 4.

Keywords: *European defense industry, Polish defense industry, Technical Modernization Plan of the Armed Forces of the Republic of Poland, offset, state security.*

Introduction

One of the factors influencing the state of security of a country are its economic potential and industrial base. This is particularly true for the defense industry, which has been highlighted by the ongoing aggressive war of Russia against the Ukraine. After only half a year of military operations, both sides began to experience the shortages of equipment and supplies concerning especially large-caliber artillery ammunition.

Poland is currently breaking records in defense expenses – next year, the funds at the disposal of the Ministry of National Defense (state budget, Armed Forces Support Fund) are to be 10% higher than in 2024. The amount will be up to PLN 169 billion, or 4.2% of GDP.

PLN 53 billion, or $13.25 billion in 2025 alone of this amount is supposed to be spent directly for the purchases of weapons and military equipment.

The aim of the research in this article is to present the development prospects of the Polish defense industry and to indicate its strengths and weaknesses. The practical aim is also to develop conclusions and proposals that may improve its condition.

The subject of the research is the Polish defense industry.

The work uses the document and literature study method as the leading method and the historical and dogmatic methods as auxiliary methods. The use of the first method was justified by the fact that a number of written sources had been collected, such as monographs, scientific articles and reports, which were analyzed and interpreted. It allowed to draw conclusions. In turn, the use of the historical

method allowed for the identification of events that had had an impact on the state and prospects of the Polish defense industry and a better understanding of its current condition and an attempt to predict its prospects. Thanks to the lessons from the past, the later decisions might be made more accurately in the present and the future. On the other hand, the use of the dogmatic method allowed for the analysis and interpretation of the applicable legal norms that regulate the functioning of the Polish defense industry sector. By examining legal texts, it became possible to explain the meaning and scope of the above-mentioned legal norms.

The use of the above research methods made it possible to obtain a deeper and more precise image of the condition and prospects of the domestic defense industry.

A research limitation is the access to classified information and information constituting a company's trade secret.

I. Industry defense in Poland and defense outlay

The proverb *Si vis pacem, para bellum,* despite the passage of centuries, has not lost any of its relevance. The defense industry is one of the pillars of each country's security. For this reason, we must not forget that "Modern armed forces are not only the level of specialized training of soldiers, equipment and weapons that meet the requirements of the modern battlefield. It is also their own modern arms industry and modern research and development centres, international cooperation, export and import, the amount of financial resources, staff, innovative management, access to information on the directions of research on new types of weapons and their introduction to equipment of troops by the enemy, as well as the knowledge of the markets focused on purchasing weapons, etc." [6].

During the Polish People's Republic, the state absolutely dominated the armaments sector. All plants producing for the defense industry were state-owned and had the status of state-owned enterprises. The state decided about what was to be produced, in what quantity and what parameters the ordered products were to have

[6] *A. Żebrowski, Zagrożenia i bezpieczeństwo przemysłu zbrojeniowego... u progu XXI wieku (wybrane aspekty), [w:] Przemysł zbrojeniowy. Tendencje, perspektywy, uwarunkowania, innowacje, pod red. R. Kopeć, Kraków 2016, s. 18 i 19.*

[7].

Poland's departure from the centrally controlled socialist economy in the 1990s in favour of a free market economy resulted in a number of structural changes that had a negative impact on the condition of the Polish defense industry. Many armaments factories were closed or their production profile was completely changed to civilian production. A number of capabilities in the production of armaments and ammunition were lost, in particular cluster or thermobaric ammunition. One of the reasons for this state of affairs was that "Practically the entire range of manufactured armaments was manufactured under Soviet licenses. The conditions of the licenses which were granted, limited the independence of the plants in modernising armaments, using other components and the right to introduce changes"[8]. The situation is made worse by the fact that over the course of thirty years, new technologies have appeared, unknown in the 20th century, which have now become standard equipment in modern armies. Here, the Polish defense industry shows certain deficits.

The source of the "rolling up" of the defense industry was primarily the lack of significant orders from the Ministry of National Defense carried out by the domestic defense industry sector. Arms exports also decreased significantly which inevitably affected the condition of entrepreneurs in the arms industry. This situation began to change under the influence of external factors, namely Poland's accession to NATO, as well as growing political and military pressure from Russia on neighboring countries. The alarm signal that caused the intensification of Poland's defense effort was Russia's aggression against the Ukraine, which began on February 24, 2022. The amount of equipment, weapons and ammunition ordered increased, both domestically and abroad. It gave new opportunities whether as a part of the so-called offset or joint ventures to acquire technologies to which the Polish defense industry had not had access until now.

---

[7] *K. Piątkowski, Polski przemysł zbrojeniowy na rozdrożu, „Polska w Europie" 2003, Nr 1, s. 154.*

[8] *M. Szlachta, A. Ciupiński, Od politycznej współpracy do gospodarczej konkurencji – przemysł obronny krajów Europy Środkowo-Wschodniej po upadku ZSRR, „Rocznik Instytutu Europy Środkowo-Wschodniej" 2021, Nr 19, Z. 2, s. 84.*

Poland's economic development and the growth of its GDP also have a positive impact on the level of orders in the domestic defense industry. The constant and long-term financing of purchases for the army and other formations serving the security of the state is also a factor that has a positive impact on the prospects for its development.

Poland's significant defense spending is not unique on the European continent. Since 2014, a slow upward trend has been observed among NATO member states which increased significantly in 2023.

For example, the defense expenditures of Poland, the Czech Republic, Hungary, Slovakia, Germany and, in contrast, Russia was analysed, using the criterion of percentage share in GDP as well as the monetary criterion (funds spent in millions of dollars).

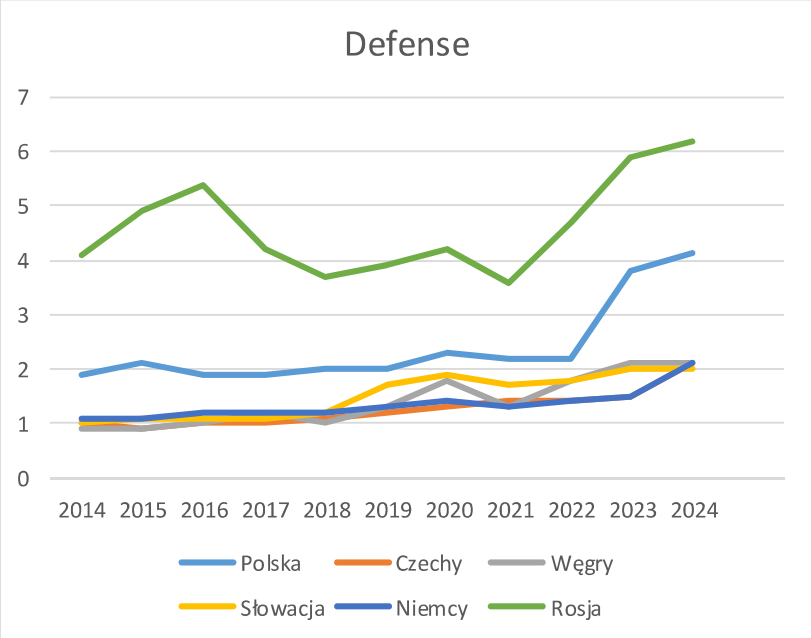


Figure 5.2 Defense expenditures, percentage share in GDP, (2014-2024)

Source: own study based on SIPRI data and NATO

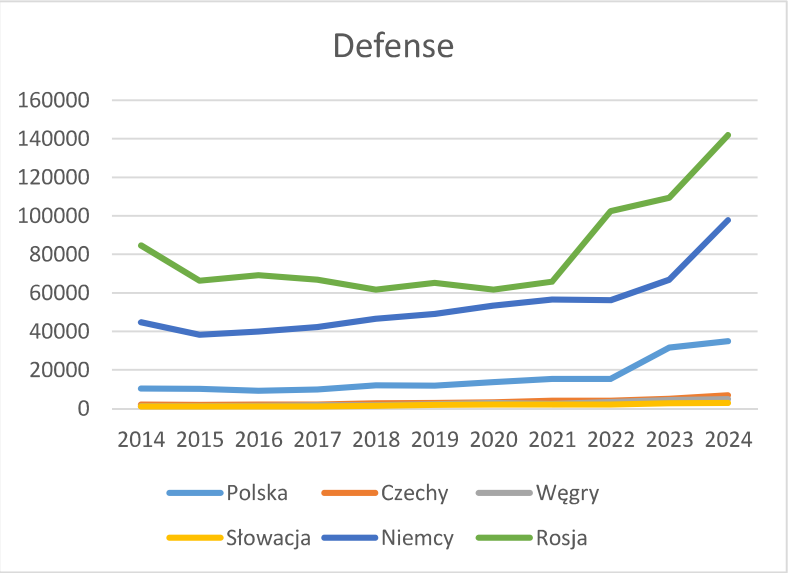


Figure 5.3 Defense expenditures, monetary criterion (funds spent in millions of dollars), (2014-2024)

Source: own study based on SIPRI data and NATO

According to information provided by NATO, in 2014 only three member states spent at least 2% of GDP on defense. This situation changed positively over time, to reach 23 NATO member states in 2024 which spend at least 2% of GDP on defense. Inevitably, this spending also concerns the defense industry. Orders for weapons and ammunition were increased, research work was accelerated, new factories were built, arms companies were consolidated, and new sources of financing were launched, including for startups.

It is worth pointing out here that equipment expenditures as a share of defense expenditure in % in case of Poland for 2024 is 51.1%, Hungary 47.8%, the Czech Republic 37.9%, Slovakia 27.2%, Germany 28.7%.[9] The example of Poland shows that financial resources are not spent on maintaining personnel, but on the

[9] *Defence Expenditure of NATO Countries (2014-2024), 240617-def-exp-2024-en.pdf s. 14. date of access 18.02.2025.*

modernization of the army and the technological leap in terms of the weapons and ammunition held.

Based on the above data, it might be concluded that from 2014 to 2022, defense spending in the presented countries grew slowly, heading towards 2% of GDP. A significant increase was recorded from 2022 to the present, which is undoubtedly related to Russia's aggression against the Ukraine. The so-called expeditionary army model in case of a full-scale and long-term armed conflict, in which both sides have advanced military technology, proved to be useless. The amount of destroyed military equipment, the consumption of ammunition and other materials during the war in the Ukraine, made it clear to NATO countries that they were not prepared for this type of clash. The existing industrial base, material resources and personnel reserves turned out to be insufficient, which forced the governments of these countries to respond, among others, by increasing defense spending.

II. European defence industry

The European defense industry, as A. Rogala-Lewicki emphasizes, has been undergoing a process of very intensive consolidation of the arms sector since the 1990s, initially at the national level, and later internationally (although it did not cover all concerns; for example, the Swedish Saab remained outside the European consolidation process). It can be seen that these activities have resulted in a significant increase in the competitiveness of the concerns that joined this process. On the other hand, however, the increase in orders, innovation and income also went hand in hand with the closure of the most unprofitable enterprises[10]. The European defense industry, which also includes the Polish industry, is currently experiencing a kind of renaissance. While before 2022, European defense companies operated in an environment of reduced defense spending, which resulted in gaps in the production of main platforms and small production series, they now have to cope with the expectations of governments to produce quickly and in large series, which often exceeds their capabilities.

[10] *A. Rogala – Lewicki, Integracja europejskiego przemysłu obronnego, „Przegląd Geopolityczny" 2017, Nr 19, s. 158.*

The 2022 European Defense Industry Report accurately presents its SWOT analysis. According to it, **the strengths of** the European industry include: an efficient industrial base in all sub-areas; companies with the ability to integrate systems in all sub-areas; functioning integration with commercial industrial sectors; particular efficiency in the construction of submarines, combat aircraft, tanks, artillery and small arms, technological advancement in many sub-areas; a skilled workforce with a large share of engineers. On the other hand, **the weaknesses** include: the multitude of competing types of weapon systems; cyclically changing capacity utilization; limited efficiency due to domestic competition; technological gaps in relation to the US (cybernetics, fighter aircraft, unmanned drones, automated battlefield); the influence of national interests on complex orders and production; uncoordinated export policy; technological dependence on the US. The authors of the report include **the opportunities**: significantly greater financial resources in the coming years and increasing military spending; greater cooperation in Europe promoted by EU programmes; greater defence competences in the European Commission; greater coordination of armed forces equipment and weapon systems. On the other hand, they see **threats** in: cost explosion due to complex coordination processes and divergent requirements; planning without Great Britain (Brexit); lack of qualified specialists; too many competing development projects [11].

In turn, according to the 2024 IISS Report *Building Defense Capacity in Europe: An Assessment,* the European defense industry has significantly increased some aspects of its production capacity since 2022, particularly in sectors where the Ukraine's demand is the strongest, such as air defense and artillery. For example, Rheinmetall's global annual production rate of 155mm ammunition has increased tenfold to 700,000, thanks to a combination of mergers and acquisitions, as well as investments in existing plants and new factories in Hungary, Lithuania and the Ukraine, and is very likely to reach one million rounds per year by 2026. Despite this, it is important to recognise that European states remain dependent on the United States for some important aspects of their military capabilities, such as rocket artillery, extended-range air defence and

[11] *Przemysł obronny w Europie. Raport 2022, s. 16. Defence Industry report_ PL.pdf date of access 21.02.2025.*

low-observability strike systems. However, where options for European equipment have emerged, European allies have chosen to invest in such systems since 2022. Indeed, IISS data shows that as of February 2022, 52% of NATO Europe's total platform procurement costs came from European companies. Only 34% came from the United States in the following categories: armored fighting vehicles; self-propelled artillery; medium- and long-range surface-to-air missiles; all manned aircraft; all manned naval vessels; and combat intelligence, surveillance, and reconnaissance (ISR) unmanned aerial vehicles and guided missiles[12].

As it may be seen from the above examples, the defense industry in Europe is gradually waking up from its thirty-year slumber, gaining new capabilities and increasing the volume of weapons and ammunition produced, as well as specialized equipment. Of course, it encounters certain barriers to development, but it seems that a significant part of them might be overcome.

III. The State of the Polish Defense Industry

Regardless of whether we are dealing with state-owned or private enterprises operating in the defence industry sector, it is necessary to remember that "PPO (Polish defence industry – K.Ch.) must have the ability to provide the Polish Armed Forces with the most modern and technologically advanced equipment, ensuring the possibility of use for a period of several years to several decades. The equipment offered should also meet the requirements of interoperability and compatibility in the context of cooperation with allies. Another requirement is the open, flexible and modular design of systems, enabling adaptation to needs within the framework of tasks carried out by the army, as well as reducing the costs of production, use, servicing and repair"[13]. The chance to achieve this state may be the transfer of innovative technologies between the civilian and military

[12] *Raport IISS Building Defence Capacity in Europe: An Assessment, London, 2024, s. 111 i n. European Defence-Industrial Capability date of access 21.02.2025.*

[13] *W. Skrzypczak, P. Luzak, Miejsce, rola i zadania polskiego przemysłu zbrojeniowego w systemie bezpieczeństwa państwa, „Przegląd Strategiczny" 2014, Nr 7, s. 477.*

sectors[14]. This requires a rational and coherent industrial policy of the state. Therefore, one should fully agree with the thesis of W. Lewandowski and P. Fonrobert that "The state's policy towards the defense industry should result from long-term plans for its functioning and development, not only for its own armed forces, but also as an element of the export of products, technologies or services to world markets. Each state with specific aspirations and technological capabilities, taking care of its own security, bases its defense production primarily on its own enterprises and domestic solutions. Otherwise, there is no question of effective operation of its own armed forces in the long term."[15]

Currently, the Polish defense industry includes both companies associated within the Polish Armaments Group (hereinafter referred to as PGZ), the WB Group, as well as those that operate fully autonomously and independently, such as Advanced Protection Systems SA, **Hertz Systems Ltd Sp. z oo,** Creotech Instruments SA, Lubawa SA, PZL Mielec Sp. z oo, Protector SA, AMZ – Kutno SA, or Scanway SA

Polska Grupa Zbrojeniowa is one of the largest defense concerns in Europe. It brings together over 50 companies in five domains (areas), namely land, weapons and ammunition, C4ISR (electronics, information technology, cyber technology), aviation, naval. It should be noted that in 2022 it took 73rd place on the list of 100 largest defense companies, achieving revenues of $ 1,890 million, while a year later it improved its position, taking 64th place and achieving revenues of $ 2,060 million, thus recording a 9% increase[16].

The land domain includes the following companies: Huta Stalowa Wola; Stomil – Poznań SA; Zakłady Mechaniczne „Bumar – Łabędy" SA; Research and Development Centre for Mechanical Devices OBRUM; Rosomak SA; Wojskowe Zakłady Motoryzacyjne SA; Jelcz Sp. z o. o.; Research and Development Centre for the Tire

---

[14] *B. Pacek, Konsolidacja przemysłowego potencjału obronnego w Polsce. Uwarunkowania, dylematy i szanse, „Zeszyty Naukowe AON" 2014, Nr 1 (94), s. 13.*

[15] *W. Lewandowski, P. Fonrobert, Polski przemysł obronny - ambicje i perspektywy, „Problemy Techniki i Uzbrojenia" 2021, Tom 158, Nr 3-4, s. 115.*

[16] *THE SIPRI TOP 100 ARMS PRODUCING AND MILITARY SERVICES COMPANIES, 2023, The SIPRI Top 100 arms-producing and military services companies, 2023 s. 10. date of access 21.02.2025.*

Industry “Stomil”; Zakład Mechaniczny “BUMAR-MIKULCZYCE” SA; H. Cegielski-Poznań SA

The domain of weapons and ammunition includes the following companies: MESKO SA; PCO SA; CENZIN Sp. z oo; Fabryka Broni „Łucznik” – Radom sp. z oo; Wojskowe Zakłady Uzbrojenia SA; Bydgoskie Zakłady Elektromechaniczne „BELMA” SA; Zakłady Produkcji Specjalnej „GAMRAT” Sp. z oo; Zakłady Chemiczne „NITRO-CHEM” SA; Zakłady Metalowe „DEZAMET” SA; Przedsiębiorstwo Sprzętu Ochronnego „Maskpol” SA; Zakłady Mechaniczne „Tarnów” SA

The C4ISR domain (electronics, information technology, cybertechnology) includes the following companies: PIT-Radwar SA; Research and Development Center of Maritime Technology SA; Military Electronic Works SA; Military Communication Works No. 1 SA; Military Communication Works No. 2 SA; ZURAD Sp. z oo

The aviation domain includes the following enterprises: Military Aviation Works No. 1 SA; Military Aviation Works No. 2 SA; Military Central Design and Technology Office SA; Communication Equipment Factory “PZL-Kalisz” SA; Tool Shop-Mechanik Sp. z oo

The maritime domain includes the following companies: PGZ Military Shipyard Sp. z o. o.; Nauta Ship Repair Yard SA.

Noticeably, for several years now, PGZ has been systematically developing its potential, taking over and incorporating new companies into the group, as well as modernizing and expanding its machinery and production lines, as well as the production volume. Moreover, its products meet the requirements of the 21st century battlefield, and therefore the thesis that PGZ significantly contributes to the generational leap of the domestic defense industry seems to be justified. Cooperation with foreign partners, who transfer technologies that were previously beyond the reach of Polish entrepreneurs, is helpful in this respect. Offset agreements also play a positive role[17].

The second most serious domestic player on the Polish arms market is the WB Group. It consists of 12 entities, namely: Zakład Automatyki i Urządzeń Pomiarowych AREX Sp. z oo; Flytronic SA;

[17] *K. Chochowski, Blaski i cienie ustawy offsetowej, [w:] Bezpieczeństwo a perspektywy przemian globalizującego się świata, pod red. A. Szylar, P. Maciaszczyka, Tarnobrzeg 2020, s. 181 – 195.*

Mindmade Sp. z oo; Polcam Systems Sp. z oo; Radmor SA; WB America LLC; WB Electronics SA; WB India; WB Middle East LLC; WBE Technologies Sbn Sdh; WB UKRAINE LLC; PNS Sp. z oo They offer communications and command technologies, as well as advanced solutions for the armed forces in such areas as: observation and reconnaissance systems; command, communications and battlefield management systems; fire control systems; strike systems; IT and cybersecurity systems; equipment and modernization of military equipment.

It is neither possible nor advisable to present here a larger number of entities involved in armaments production in Poland. It should be emphasized, however, that practically all of them have recorded a significant increase in the sales of products and services in recent years, which has resulted in the profit achieved.

IV. The most important achievements of the Polish defense industry in recent years

The most important achievements of the Polish defense industry are, above all, the "Krab" howitzer, the M120 "Rak" self-propelled mortar, portable anti-aircraft missile systems – "Piorun" – manufactured by ZM Mesko SA or the FlyEye loitering ammunition and unmanned aerial vehicles. This equipment has proven itself in front-line conditions, and has been successfully used by the Ukrainian army in its defensive war with Russia[18].

It is also worth paying attention to the DRAGONFLY loitering ammunition system (LMS), the core of which is a vertical take-off and landing warhead carrier in a quadrocopter system, which is a unique solution on a global scale. Its greatest advantage is mobility, low weight and dimensions, very short system launch time, as well as the possibility of using various warheads starting from the GK-1 HEAT cumulative warhead, through the GTB-1 FAE thermobaric warhead, the GO-1 HE fragmentation warhead, ending with the GO-1 HE-TP / GO-1 HE-TR training warhead[19]. Another promising loitering ammunition system for precision destruction is the GIEZ system consisting of a transport container – a launcher for unmanned aerial vehicles, an air platform with a warhead, a ground C2 station

[18] *Katalog_BBN_2024.indb s.5, date of access 11.02.2025.*
[19] *Ibid, s. 15.*

and a tracking antenna. The system is characterized by ease of use, short time of preparing the platform for launch and the possibility of operating the system by one soldier and the possibility of using various warheads[20].

The successes of the Polish defense industry in the sphere of space technologies are undoubtedly worth noticing. As an example, it is worth mentioning HyperSat as a family of versatile microsatellite platforms developed by Creotech Instruments SA, which can be easily integrated with various payloads and launched into low Earth orbit. Two platform configurations are available, namely: Eagle – total satellite mass from 60 to 80 kg, optimized for Earth observation reconnaissance payloads with a resolution of approx. 1 m, but adaptable to many other payloads or Kestrel – total satellite mass from 15 to 25 kg, optimized for Earth observation reconnaissance payloads with a resolution of approx. 4 m, equipped with inter-satellite laser links, capable of operating as swarms in close proximity formations[21].

Other examples of the successes of the domestic defence industry include the POPRAD Self-Propelled Surface-to-Air Missile System which is designed to detect, recognise and destroy air targets at close range and low altitudes, using short-range anti-aircraft missiles[22]; the PILICA anti-aircraft missile-artillery system, which is a very short-range air defence system (V-SHORAD)[23]; the BYSTRA 3D multifunctional and multi-task radar for SHORAD systems used to protect tactical combat units against air threats with versatile capabilities and various applications[24]; the P-18PL long-range radar station and the Passive Location System radar, which can see the enemy while remaining invisible to him; the BORSUK infantry fighting vehicle[25]; the ZSSW 30 remotely controlled turret[26]; and the GROT automatic rifle[27].

The above list is only an example, and the Polish defense industry

[20] *Ibid*, s. 19.
[21] *Ibid*, s. 22.
[22] *Ibid*, s. 46.
[23] *Ibid*, s. 52.
[24] *Ibid*, s. 47.
[25] *Ibid*, s. 60.
[26] *Ibid*, s. 75.
[27] *Ibid*, s. 178.

is able to provide the Armed Forces of the Republic of Poland with a number of modern products. Of course, this does not mean that it has the full capabilities to meet all the needs of the Polish army because it still shows gaps and deficits in many aspects. The way to overcome them may be the cooperation with foreign partners or a purchase of a given technology.

V. Main problems of the Polish defense industry

Despite the undoubted successes of the Polish defence industry, it still struggles with unresolved problems that negatively affect the competitiveness of the industry. These include, first and foremost: fragmented and unstable supply chains, lack of multi-year and large-scale orders, lack of financial resources for generational replacement of equipment, weapons and ammunition, lack of centralised orders at the EU level carried out by the European industry, low absorbtion of new technologies, lack of a developed industrial base, poor cooperation between industry and the R&D sector, orders do not cover comprehensive modules but only individual components which makes it difficult for defense companies to optimise production and ensure an appropriate product life cycle.

The authors of the Polish Arms Industry 2024 Report draw attention to similar problems, according to whom the basic shortcoming is the too small production capacity of the domestic defense industry and the unknown scale of technology transfer from South Korea to Poland. In their opinion, "The huge purchases of arms in Korea were to be accompanied by a wide stream of advanced technical and technological solutions, which would raise the domestic defense industry to a new level of modernity. So far, we have managed to obtain rather little for our arms industry – simple service and servicing of the ordered equipment".[28] This situation should be changed as soon as possible in order to gain new production capacities and technological independence.

F. Seredyński, co-author of the Sobieski Institute Report 2024 entitled How to arm Poland? Deterrence, army, industry, state immunity, takes a similar position. In his opinion, "In many cases, Poland has acquired equipment abroad on a large scale, but at the

[28] *Raport: Polska branża zbrojeniowa 2024 | MM Magazyn Przemysłowy date of access 13.02.2025.*

same time the possibility of its own servicing and repairs at the industrial level of the acquired weapons was not ensured, not to mention the possibility of replenishing losses with new weapons of domestic production. (...) However, it is becoming crucial to develop the ability of the Polish arms industry to produce military equipment, ammunition and to independently service and repair equipment at an industrial level. No army in the world independently services equipment at all repair levels, and in war conditions the possibility of replenishing weapons and conducting service abroad is also limited. It then becomes necessary to militarize our own industrial plants, previously prepared to conduct operations in war conditions, and using such a fully available base – to restore the combat capabilities of the equipment and replenish losses. In order to produce new military equipment, the possibilities of locating it in Polish plants should be maximized. This will benefit the Polish economy, raise the level of technical culture and ensure access to production capacity in the event of an armed conflict".[29]

Therefore, the thesis that "Every contract for the purchase of foreign equipment should require the supplier to guarantee having a Polish partner who, after the delivery, will take over its servicing. In the case of large purchases, this should also include the requirement to transfer the production of basic spare parts to Poland. Another guaranteed activity should be the transfer of repair and servicing technology to Poland and the transfer of knowledge enabling, in the case of the purchase of new, not used, equipment, its mid-life modernization to be carried out in Poland".[30]

P. Soroka and PL Wilczyński have a similar view on this issue, according to whom "In accordance with the principles of geoeconomics, even if countries buy foreign armaments and military equipment, they ensure the right to repair and service it, and preferably also modernize it on their own territory which requires gaining access to the technology of its production. On average, about 30 years pass from the time of acquiring the product to the time of the end of its use. During this period of use, the product is subject to repair and modernization works. Ensuring the buyer's independence

[29] *23.10.2024-Jak-uzbroic-Polske.pdf s. 42. date of access 14.02.2025.*

[30] *Co dalej z polskim przemysłem obronnym? [ANALIZA] | Defence24 date of access 15.02.2025.*

in repairing, servicing and modernizing the armaments purchased abroad should be the basic condition for concluding a contract with a foreign manufacturer".[31]

Another problem is the mismatch of legal regulations to the current needs of security system entities, which are to be met by, among others, the domestic defense industry. This issue is subjected to a detailed analysis by AS Jarubas, according to whom "Despite many legal acts and government documents, since the establishment of the Polish Armaments Group, the government and the Ministry of Defense have not led to the adoption of an act that would regulate issues related to the functioning of the arms sector in a systemic and uniform manner. The dispersion of regulations and often their ambiguity have undoubtedly had a negative impact on the functioning of the arms industry sector in the difficult time of the pandemic".[32] The issue of undertaking quick legislative work in the above-mentioned area seems necessary, in order to facilitate the functioning of arms companies and overcome this specific normative confusion.

The method of communication between the industry and the Ministry of Defence also raises concerns, as armaments companies have doubts as to whether the Ministry of National Defence is really ready to buy large quantities of military equipment in Poland. On the other hand, the other side (the Ministry of National Defence) believes that the terms of supply proposed by domestic entrepreneurs are very often insufficiently attractive in terms of the quantity of armaments available in a short time, their price and tactical and technical parameters of the products. This situation results from the lack of a clear industrial policy concerning the defence industry, which would specify in what direction we want to develop this industry and how the state is ready to support this development.[33] "We should also strive to maximally allocate purchases of military

---

[31] *P. Soroka, P.L Wilczyński, Potencjał polskiego przemysłu zbrojeniowego, „Przegląd Geopolityczny" 2018, Nr 23, s. 67.*

[32] *A.S. Jarubas, Zmiany w prawie dotyczącym przemysłu zbrojeniowego w polsce. Perspektywa postpandemiczna, „Przegląd Geopolityczny" 2021, Nr 38, s. 74.*

[33] *Polski przemysł obronny w pigułce | MM Magazyn Przemysłowy date of access 13.02.2025.*

equipment in the Polish defence industry, including private companies, eliminating their discrimination in the purchases of this technology".[34]

All this has a negative impact on the competitiveness of not only the domestic defence industry but also the competitiveness of the European industry.

VI. General assumptions of the Technical Modernization Plan of the Polish Armed Forces

There is no army in the world that could be said to be 100% modern. "Technical modernization is one of the key elements of the functioning of the armed forces of every country. Due to the fact that, when efficiently and properly carried out, it improves the capabilities, effectiveness and safety of soldiers and the armed forces as a whole, almost every country in the world with its own armed forces, constantly subject them to technical modernization".[35]

The ongoing technological progress means that the process of modernization of the armed forces is by its nature endless. It is no different in the case of the Polish Army, for which the Technical Modernization Plan of the Polish Armed Forces, hereinafter referred to as the PMT, has been implemented. This plan was approved on October 10, 2019 by the Minister of National Defense for the years 2021-2035, taking into account 2020. The legal basis for the Technical Modernization Plan for the years 2021-2035 is the Act of May 25, 2001 on the reconstruction and technical modernization and financing of the Armed Forces of the Republic of Poland. [36]The amount of planned expenditure is PLN 524 billion, i.e. approximately USD 133 billion, and in the context of the ongoing war in Ukraine, it is highly likely that it will increase further.

PMT is closely related to the Polish Armed Forces Development Program, which is a classified document, and therefore the Authors

---

[34] *Microsoft Word - 2022.01.13 Raport Gospodarczego Gabinetu Cieni BCC - PRZEMYSŁ OBRONNY.docx date of access 13.02.2025.*

[35] *D. Jasiński. Modernizacja techniczna w Siłach Zbrojnych Rzeczypospolitej Polskiej i w Siłach Zbrojnych Federacji Rosyjskiej – wybrane zagadnienia, „De Securitate et Defensione. O Bezpieczeństwie i Obronności" 2018, nr 1 s. 165.*

[36] *Ustawa z dnia 25 maja 2001 roku o przebudowie i modernizacji technicznej oraz finansowaniu Sił Zbrojnych Rzeczypospolitej Polskiej, tekst jednolity Dz.U. z 2019 roku, poz. 1453, zwana dalej w skrócie umt.*

cannot present it to the Reader.

Referring directly to the PMT, it should be stated that it includes several programs, the implementation of which in the Polish army will allow it to gain new capabilities and raise it to a higher level of combat effectiveness. In this way, it will increase the security of not only Poland but also other NATO countries.

These programs include the following programs: PATRIOT system; HIMARS launchers; HOMAR-K launchers; ABRAMS M1A2 SEP v.3 tanks; ABRAMS M1A1 tanks; K2 tanks; BORSUK infantry fighting vehicle; F-35 aircraft; FA-50 aircraft; M-346 aircraft; Saab 340 AEW aircraft; JASSM-ER; K9 gun-howitzers; KRAB gun-howitzers; RAK mortars; Naval Missile Unit; Frigates from the MIECZNIK program; KORMORAN II class destroyers; ORP ŚLĄZAK patrol corvette; Carl Gustaf M4 grenade launchers; AW149 helicopters; APACHE helicopters; AW101 helicopters; Black Hawk helicopters; Rosomak ZSSW-30; ŻMIJA vehicles; PIORUN; BAYRAKTAR TB2 drones; GLADIUS drones; WIZJER drones; FLY EYE drones; ORLIK drones; Barbara aerostats; LMP-2017 mortars; VIS 100; EOD/IED robots; Tugboats; MSBS GROT.

"The Technical Modernization Plan of the Polish Armed Forces for 2021-2035 is very ambitious, and its implementation is to take the domestic army to a higher level of combat capabilities. It takes into account the ongoing technological progress, especially in the field of cybernetics and information technology, although the question remains whether it is sufficient. It includes new areas of armed struggle such as cyberspace and outer space".[37]

PMT is a lever that can elevate not only the Polish army, but also the Polish defense industry to a new level. If we also take into account the East Shield program, the Gear action, or the needs of the reactivated Civil Defense, the prospects for this branch of industry in Poland are optimistic.

VII. Offset, framework and implementation agreements

In the Polish media space, information about new agreements

[37] *K. Chochowski, Plan Modernizacji Technicznej Sił Zbrojnych Rzeczypospolitej Polskiej na lata 2021 – 2035 jako przejaw polityki publicznej państwa polskiego, [w:] Oblicza polityk publicznych, pod red. S. Falińskiego, D. Strus, Wydawnictwo UPH w Siedlcach, Siedlce 2022, s. 25.*

concluded with both domestic and foreign entities, the subject of which are new types of military equipment and technology, appears every now and then. This gives the impression that the Polish army is being flooded with a huge amount of various types of weapons. However, this is not the case, because in the media coverage, little attention is paid to the distinction between agreements. Offset agreements are one thing, and framework or implementation agreements are another.

Offset agreements "These are agreements between the State Treasury of the Republic of Poland and a foreign supplier. As a result, there is forced cooperation between domestic entities and a foreign supplier. According to the Offset Act, the offset agreement is to ensure the participation of foreign suppliers in the process of restructuring and development of the economy of our country, and in particular the arms sector".[38] Therefore, in the case of what is popularly referred to as offset, we are dealing with compensation agreements.

The legal definition of offset is provided by the legislator in art. 2 item 14 of the Act of 26 June 2014 on certain agreements concluded in connection with the implementation of orders of fundamental importance to state security (consolidated text Journal of Laws of 2017, item 2031). According to the above provision, offset means cooperation between the State Treasury and the offset recipient and a foreign supplier necessary to maintain or establish in the territory of the Republic of Poland the potential in the scope of production, service and maintenance and repair capabilities, as well as other capabilities necessary from the point of view of protecting the fundamental interests of state security, consisting in particular in the transfer of technology, know-how together with the transfer of copyrights or use of the work on the basis of a granted license in order to ensure the independence from the foreign supplier required by the State Treasury.

Offset transactions, as stated by K. Rawska, are a manifestation of state intervention in the economy and strengthening the capabilities

[38] *C. Banasiński, E. Piontek, Art. 119. W: Ustawa o ochronie konkurencji i konsumentów. Komentarz [online]. Wydawnictwo Prawnicze LexisNexis, 2019-04-10 04:17 [date of access: 2019-05-01 10:53]. URL: https://sip.lex.pl/#/commentary/587550288/347728.*

of the domestic industry.[39] A similar position is taken by W. Walczak, who believes that "(...) it must be recognized that offset can contribute to the development of economic entities in the defense industry, leading as a result to the enrichment of their production potential with new technologies".[40] The main advantage of offset agreements is therefore the possibility of transferring modern technologies. Poland, despite having a developed defense sector, often needs the latest technologies, which can only be available from foreign partners. Thanks to such cooperation, Polish companies can gain access to innovative solutions, which are key to the modernization of military equipment.

Framework agreements define the maximum foreseeable value of the subject of the order and its quantity. However, they do not give rise to a claim on the part of the contractor for the execution of the order. In simple terms, framework agreements are a form of a letter of intent in which both parties declare their willingness to cooperate in the execution of the subject of the agreement.

Implementation agreements are provisions binding on both parties that indicate the specific value and quantity of what is ordered, as well as the contract execution time and delivery schedule.

In the thicket of information regarding arms contracts for the Polish army, it is necessary to distinguish between different types of contracts in order to be able to cut through the information noise and draw accurate conclusions.

As an example, it is necessary to present several agreements concluded for the modernization of the Armed Forces of the Republic of Poland. On April 28, 2023, an executive agreement was signed for the delivery of 22 Rocket-Artillery Sets (ZRA) Pilica+. The value of the order is almost **three billion PLN** . Fabryka Broni "Łucznik" signed a contract for the delivery of an additional 70 thousand MSBS Grot A2 rifles for the amount of **PLN 826 million**. The next orders for this factory include the delivery of 250 Grot

---

[39] *K. Rawska, Pozyskiwanie nowych technologii oraz modernizacja uzbrojenia z wykorzystaniem offset transakcji wiązanych, „Współczesne Problemy Zarządzania" 2020, Volume 8, Number 1 (16), s. 63.*

[40] *W. Walczak, Umowy offsetowe jako szansa rozwoju spółek polskiego przemysłu obronnego, [w:] Międzynarodowa współpraca gospodarczo-obronna, pod red., P. Soroka, K. Wątorek, A. Zagórska, Warszawa 2017, s. 131.*

762N sniper rifles and an additional 88 thousand Grot rifles worth **PLN 1 billion. PLN** , as well as 28 thousand VIS 100 pistols worth **PLN 160 million**. The Maskpol company signed a contract with the Armament Agency for the delivery of several dozen thousand bulletproof vests, worth **PLN 490 million.** On December 19, 2023, the Armament Agency and the PGZ-NAREW Consortium signed an implementation contract for the delivery and servicing of 24 P-18PL (UW-10) long-range radar sets. The contract is to be implemented in the years 2023-2035, and its value is **over PLN 3.1 billion**. On December 22, 2023, the PGZ-Amunition Consortium and the Armament Agency concluded an implementation contract for the delivery of nearly 300 thousand pieces of 155 mm artillery ammunition implemented under the National Ammunition Reserve program. The value of the order is **nearly PLN 11 billion**, and its implementation will take place in 2024-2029.

An agreement was also signed between PIT-RADWAR and Wojskowe Zakłady Elektroniczne and the Norwegian concern Kongsberg Defence & Arerospace (KDA) for the production and delivery of two Naval Missile Units and the servicing and production of NSM missiles. In addition, PGZ companies signed agreements with the Armament Agency for the delivery of nearly 400 Light Reconnaissance Vehicles and two framework agreements for the delivery of Heavy Infantry Fighting Vehicles and a New Wheeled Armoured Personnel Carrier, as well as for the delivery of BAOBAB-K Scattered Mine Laying Vehicles and mines manufactured by the Bydgoszcz company Belma. It is also worth mentioning that the Armament Agency of the Ministry of National Defence signed an agreement with the RADMOR company (part of the WB GROUP) for the delivery of software-defined radio stations and accompanying equipment. The order includes devices intended for installation on mobile platforms. In turn, on September 5, 2023, the Armament Agency of the Ministry of National Defense signed a contract with GRUPA WB for the delivery of nearly 1,700 FlyEye unmanned aerial systems. The framework contract is to be completed by 2035.

These are just some of a number of new agreements, both framework and executive. There is also growing talk about the need to buy a squadron or two squadrons air superiority fighters,

indicating here the American F-15 and heavy transport helicopters CH-47 Chinook. In the case of conclusion of these agreements, the value will be counted in billions of zlotys.

VIII. Opportunities and Threats for the Defence Industry in Poland

The ambitious plans of the Polish authorities to modernize and expand the army and increase its combat capabilities necessarily require huge financial outlays. At this point, it is worth paying attention to the information provided by the Ministry of National Defense according to which, "in 2024, the Armaments Agency (AU) concluded 99 contracts (including 20 with PGZ SA), with a multi-year value of approx. PLN 145 billion (including PLN 32.5 billion with PGZ SA) and 19 annexes to increase the number of acquired military equipment. In addition, the Agency launched 10 orders under the "option right" and concluded 3 offset agreements. As of December 31, 2024, the Armaments Agency implemented a total of 467 contracts, the multi-year value of which amounted to approx. PLN 540 billion. 235 contracts were implemented with entities of the Polish defence sector – for a multi-year value of approximately PLN 198 billion (37%), including: with companies of the PGZ Capital Group – 135 contracts for the amount of approximately PLN 171 billion; with other domestic entities – 100 contracts for the amount of approximately PLN 27 billion. The value of all the above-mentioned multi-year contracts in 2024 amounted to approximately PLN 57 billion, including contracts implemented by domestic entities – approximately PLN 25 billion (44%), of which: by companies of the PGZ Capital Group – 135 contracts – for the amount of approximately PLN 19 billion; by other domestic entities – 100 contracts – for the amount of approximately PLN 6 billion. At the same time, the Inspectorate for Support of the Armed Forces, from the budget of the Ministry of National Defence, as part of the orders implemented, directed over PLN 2 billion to the Polish Armaments Group and almost PLN 1.3 billion to Polish arms factories that are not part of the Polish Armaments Group".[41]

Referring to the domestic capabilities of supporting the Polish

[41] *Ministerstwo Obrony Narodowej publikuje dane dotyczące środków kierowanych do krajowego przemysłu obronnego date of access 21.02.2025.*

defence industry, it should be noted that they are related to the Act of 7 October 1999 on supporting the restructuring of the industrial defence potential and technical modernisation of the Armed Forces of the Republic of Poland (Journal of Laws 2020.1663, i.e. of 2020.09.28)[42], the Act of 11 March 2022 on the defence of the Homeland (Journal of Laws 2022.2305, i.e. of 2022.11.14, hereinafter referred to as the[43] Armed Forces Support Fund), as well as the Fund for Support of the Armed Forces established pursuant to Art. 41 of this Act. This Fund was established in the Bank Gospodarstwa Krajowego, and its resources are allocated to the implementation of the objectives specified in the Armed Forces Development Programme[44].

In addition to the domestic funds mentioned earlier, it is also worth considering the possibility of obtaining external funds from the European Union (European **Defence Fund**, The European Defence Industry Programme**, the EU's ASAP** ammunition production support programme),[45] NATO (**NATO Innovation Fund**, NATO **Security Investment Programme)** or received under special programmes such as FMF Foreign Military Financing, under which, on 6 December 2024, Poland received a USD 4 billion loan for the rapid transformation of the Polish army.

When considering the financing of the defense industry in Poland, it is also necessary to mention the decisions to recapitalize specific companies in the defense industry. For example, **PGZ received PLN 400 million in funding** from the State Treasury for its investments in the plants in Pionki and Skarżysko Kamienna, and the total value of the investment will amount to PLN 466.7 million. For investments in **Huta Stalowa Wola,** the plant received **PLN 600 million in funding from the State Treasury**, and the total value of the investment will amount to almost PLN 665 million. In turn, for investments in **ZM Bumar, it will receive PLN 850 million** from

[42] *Dz.U.2020.1663 t.j. z dnia 2020.09.28*

[43] *Dz.U.2022.2305 t.j. z dnia 2022.11.14*

[44] *K. Chochowski, Ustawa o obronie Ojczyzny – nowa jakość bezpieczeństwa państwa?, „Roczniki Nauk Społecznych KUL" 2023, Tom 51, nr 4, s. 196.*

[45] *Szerzej na ten temat, patrz np.: P. Zamelek, Budowanie odporności sektora obronnego w perspektywie Komisji Europejskiej, „Wiedza Obronna" 2024, Vol. 286 No. 1.*

the State Treasury, which will constitute 100% of the investment value.

However, it would be worth supporting not only entities from PGZ but also those from outside it, especially those involved in the production of anti-drone systems and satellites, in order to develop domestic capabilities in the indicated scope. The technical solutions that Polish entrepreneurs have at their disposal do not differ from the latest ones used in the world. They therefore fully deserve support not only to fill gaps in the state security system, but also in the context of their potential export. What is more, over time they could gradually penetrate the civilian industry, enriching its possibilities to compete on the global market. It seems, therefore, that this support will bring profits for the national economy, also in the long term.

When analyzing the opportunities and challenges facing the Polish defense industry, it is necessary to first identify **the key factors** influencing its prospects. According to the authors, these include:

– **The country's defense policy**. Political decisions regarding the country's defense, such as the defense budget, defense strategies, and decisions regarding the purchase and modernization of military equipment, have a key impact on the prospects for the defense industry. Political stability and consistent support for the defense sector are conducive to its development.

– **The changing geopolitical situation**. Tensions in the international arena and increased security threats may lead to increased demand for modern defense equipment. The Polish defense industry may benefit from such changes if it is able to deliver high-quality and modern solutions.

– **Technological advances**. Technological developments, including innovations in weapons, communication systems, cybersecurity and robotics, are shaping the future of the defence industry. Poland can benefit from these changes by investing in research and development and promoting cooperation between the public and private sectors.

– **International cooperation**. Integration with allies and participation in international defense programs can create new opportunities for the Polish defense industry. International cooperation can enable access to advanced technologies and joint development and production of defense equipment.

– **Highly qualified staff**. Access to highly qualified technical and engineering staff is crucial for the development of the defense industry. Poland must invest in education and professional training to ensure an adequate number of specialists needed to conduct advanced projects in the defense sector.

– **Security of raw material supply**. The raw materials required for the production of defense equipment can sometimes be difficult to obtain or subject to price changes on the world market. Therefore, ensuring the stability and security of raw material supply is crucial to ensuring the continuity of production in the defense industry.

- **Harmonious cooperation between industry and the R&D sector**. This issue is of particular importance within the knowledge-based economy, to which the domestic economy aspires, among others. One must agree with the thesis that "Many inventions created in research institutes working for the military later passed into everyday use by citizens".[46] Innovations implemented in the Polish defense industry can, over time, penetrate the civilian sector, increasing its attractiveness and competitiveness on the global market. Establishing cooperation between science and the arms industry is therefore of fundamental importance for the development of modern technological solutions in the area of defense. It is a process that enables the transfer of knowledge and know-how between the academic environment, where new ideas and scientific research are generated, and the industrial sector, which has production capabilities and experience in implementing these ideas in practice.

After identification basic factors influencing the prospects of the Polish defence industry, it has become possible to indicate the threats and opportunities that the domestic defence industry currently has to face. **The threats** include:

– **Shortage of multi-year military equipment purchase plans**. The Polish arms industry suffers from a lack of coherent, long-term plans for the purchase of military equipment. Uncertainty related to frequent changes in purchasing plans hinders the stable functioning of companies and effective planning of investments in the

[46] *P.L. Wilczyński, Sektor zbrojeniowy jako czynnik rozwoju gospodarki opartej na wiedzy, „Studies of the Industrial Geography Commission of the Polish Geographical Society", 2013 Vol. 21, s. 154.*

development of production and infrastructure;

– **Lack of proper investment in the development of domestic manufacturers and repair shops**. Domestic arms companies often struggle with a lack of financial support and investment in modern technologies and production infrastructure. This lack of investment hampers innovation and limits the ability of Polish manufacturers to compete on the international market;

– **Excessive dependence on foreign arms companies**. Polish national defense is largely based on imported equipment and technologies, which leads to excessive dependence on foreign suppliers. The dominance of external companies on the Polish arms market is associated with the expenditure of significant financial resources abroad and limits the state's sovereignty in the field of defense;

– **The need to rapidly increase the defense potential of the military**. Dynamic changes in the geopolitical situation, including the conflict in Ukraine, impose an urgent need to increase the defense potential of the Polish Army. However, the lack of a developed domestic defense industry means that Poland is unable to effectively and quickly respond to these changing security challenges. Understanding these key issues allows us to see the urgent need to introduce real, coherent multi-year plans for the defense industry in Poland.

In turn, **the opportunities** for this industry sector can be seen primarily in:

- Creation of new military units. A decision was made to create two new large tactical units, which, despite having the word infantry division in their name, are in fact mechanized divisions. These are: the First Legion Infantry Division (abbreviated as 1 DPLeg) and the Eighth Home Army Infantry Division (abbreviated as 8 DPAK). The 1 DPLeg will consist of 12 military units, including 4 general military brigades, an artillery brigade, 4 regiments of military types and a command battalion, a reconnaissance battalion and a chemical battalion. The 8th DPAK will consist of 11 military units: two mechanized brigades, a motorized brigade, an artillery brigade, an armored brigade, a logistics regiment, an anti-tank regiment, an anti-aircraft regiment, a command battalion, a reconnaissance battalion and a chemical battalion. The process of building these units has

already begun.

- **Construction of training grounds and centers**. As an example, it is worth mentioning the construction of a complex of facilities worth several hundred million złoty, enabling the operation of equipment and conducting training classes, including using Abrams and K2 tanks, at the Biedrusko training ground, belonging to the Land Forces Training Center in Poznań. Another example is the construction of a new training and testing center, implemented as part of the East Shield program on the premises of the Land Forces Training Center in Orzysz.
- **An active and supportive role for public administration**. Building new factories, changing the production profile, securing supply chains – all this requires activity on the part of public administration and understanding the situation in which the countries of NATO's eastern flank find themselves.
- **Development of domestic space technologies**. The Polish space industry offers a wide range of goods and services, from software, including that which uses artificial intelligence, through specialist tools and devices, to the production of nanosatellites and satellites and their launch into space. According to data from the Polish Space Agency (POLSA), our space industry consists of over 300 state and private entities, of a diverse nature, i.e. both those of a business and research nature. It employs about 12 thousand highly qualified employees.
- **Implementation of Operation Gear**. Operation Gear assumes increased purchases of various types of individual equipment and withdrawal of obsolete equipment from use. Replacing equipment with new one is intended to increase soldiers' survivability on the battlefield, as well as increase their resistance to difficult weather conditions, ability to operate at night or fight in urban areas.
- **The launch of the East Shield program**. This program involves the construction of a number of fortifications, terrain obstacles and military infrastructure along Poland's eastern border. Its value is estimated at **PLN 10 billion**.
- **Reactivation of Civil Defense**. The Act on Population Protection and Civil Defense adopted by the Parliament creates a comprehensive system of population protection and civil defense in our country. It specifies the tasks of population protection in peace

and war; bodies and entities implementing population protection tasks and the principles of planning population protection and civil defense. Funds of no less than 0.3 percent of GDP will be allocated annually for financing tasks in the field of population protection and civil defense.

- Smart factory and industry 4.0. In short, this concept means combining and integrating advanced digital technologies with physical production, thanks to which the vision of the so-called smart factory becomes a reality. As a result of this approach, it is possible to optimize the operations of a production plant, expressed, among others, in improved productivity and efficiency, increased flexibility, improved customer service, or reduced costs. The observable drive to transform defense plants towards a smart factory is a good trend.

- Stable and long-term financing. For years, Poland has been fulfilling the financial obligations set by NATO to spend at least two percent of GDP on defense. For several years, we have been observing an upward trend in this regard, culminating in the planned defense expenditure for 2025 in the total amount of PLN 186.6 billion, which is to constitute 4.7% of Poland's GDP.

- Cooperation with the R&D sector. In Poland, there are a number of research and scientific centers thanks to which it is possible to quickly develop and implement innovations in the industry. A good example is the Łukasiewicz Research Network, which includes 22 Institutes, employing 4,500 scientists, and the research conducted within it covers the area of: smart and clean mobility, digital transformation, health, green and low-emission economy. It is worth paying attention to the work on rocket technology and the Polish suborbital rocket ILR-33 Amber 2K.

Conclusions

- The prospects for the Polish defense industry are good.
- The key to success will be the effective use of geopolitical and technological changes, appropriate government support and the ability to adapt and innovate. In this way, the Polish defense industry can become not only a tool for ensuring the country's security, but also a significant player in the international arena. It is worth reaching for not only domestic funds but also external ones (EU and NATO) and entering into cooperation with other entities.

- Strengthening cooperation with civilian industry, including the information and communications technology sector, can bring additional benefits in the form of technology transfer and increased innovation.
- It is advisable to conclude large-scale implementation contracts, especially with domestic entrepreneurs, in order to reduce the unit price of the product as much as possible.
- Purchases abroad should be made based on the location of the service in Poland and, if possible, the production of spare parts in the country.
- We should strive to achieve technological independence and, if this is not possible, to obtain the product source codes.

References:

1. *Chochowski K., Blaski i cienie ustawy offsetowej, [w:] Bezpieczeństwo a perspektywy przemian globalizującego się świata, pod red. A. Szylar, P. Maciaszczyka, Tarnobrzeg 2020.*
2. *Chochowski K., Plan Modernizacji Technicznej Sił Zbrojnych Rzeczypospolitej Polskiej na lata 2021 – 2035 jako przejaw polityki publicznej państwa polskiego, [w:] Oblicza polityk publicznych, pod red. S. Falińskiego, D. Strus, Siedlce 2022.*
3. *Chochowski K., Ustawa o obronie Ojczyzny – nowa jakość bezpieczeństwa państwa?, „Roczniki Nauk Społecznych KUL" 2023, Tom 51, nr 4.*
4. *Jarubas A.S., Zmiany w prawie dotyczącym przemysłu zbrojeniowego w polsce. Perspektywa postpandemiczna, „Przegląd Geopolityczny" 2021, Nr 38.*
5. *Jasiński D.. Modernizacja techniczna w Siłach Zbrojnych Rzeczypospolitej Polskiej i w Siłach Zbrojnych Federacji Rosyjskiej – wybrane zagadnienia, „De Securitate et Defensione. O Bezpieczeństwie i Obronności" 2018, nr 1.*
6. *Lewandowski W., Fonrobert P., Polski przemysł obronny - ambicje i perspektywy, „Problemy Techniki i Uzbrojenia" 2021, Tom 158, Nr 3-4.*
7. *Pacek B., Konsolidacja przemysłowego potencjału obronnego w Polsce. Uwarunkowania, dylematy i szanse, „Zeszyty Naukowe AON" 2014, Nr 1 (94).*
8. *Piątkowski K., Polski przemysł zbrojeniowy na rozdrożu, „Polska w Europie" 2003, Nr 1.*
9. *Rawska K., Pozyskiwanie nowych technologii oraz modernizacja uzbrojenia z wykorzystaniem offset transakcji wiązanych, „Współczesne Problemy Zarządzania" 2020, Volume 8, Number 1 (16).*

10. *Rogala – Lewicki A., Integracja europejskiego przemysłu obronnego, „Przegląd Geopolityczny" 2017, Nr 19.*
11. *Skrzypczak W., Luzak P., Miejsce, rola i zadania polskiego przemysłu zbrojeniowego w systemie bezpieczeństwa państwa, „Przegląd Strategiczny" 2014, Nr 7.*
12. *Soroka P., Wilczyński P.L., Potencjał polskiego przemysłu zbrojeniowego, „Przegląd Geopolityczny" 2018, Nr 23.*
13. *Szlachta M., Ciupiński A., Od politycznej współpracy do gospodarczej konkurencji – przemysł obronny krajów Europy Środkowo-Wschodniej po upadku ZSRR, „Rocznik Instytutu Europy Środkowo-Wschodniej" 2021, Nr 19, Z. 2.*
14. *Walczak W., Umowy offsetowe jako szansa rozwoju spółek polskiego przemysłu obronnego, [w:] Międzynarodowa współpraca gospodarczo-obronna, pod red., P. Soroka, K. Wątorek, A. Zagórska, Warszawa 2017.*
15. *Wilczyński P.L., Sektor zbrojeniowy jako czynnik rozwoju gospodarki opartej na wiedzy, „Studies of the Industrial Geography Commission of the Polish Geographical Society", 2013 Vol. 21.*
16. *Zamelek P., Budowanie odporności sektora obronnego w perspektywie Komisji Europejskiej, „Wiedza Obronna" 2024, Vol. 286 No. 1.*
17. *Żebrowski A., Zagrożenia i bezpieczeństwo przemysłu zbrojeniowego... u progu XXI wieku (wybrane aspekty), [w:] Przemysł zbrojeniowy. Tendencje, perspektywy, uwarunkowania, innowacje, pod red. R. Kopeć, Kraków 2016.*
18. *23.10.2024-Jak-uzbroic-Polske.pdf*
19. *240617-def-exp-2024-en.pdf*
20. *Banasiński C., Piontek E., Art. 119. W: Ustawa o ochronie konkurencji i konsumentów. Komentarz [online]. Wydawnictwo Prawnicze LexisNexis, 2019-04-10 04:17 [dostęp: 2019-05-01 10:53]. Dostępny w Internecie: https://sip.lex.pl/#/commentary/587550288/347728.*
21. *Co dalej z polskim przemysłem obronnym? [ANALIZA] | Defence24*
22. *Defence Industry report_ PL.pdf*
23. *European Defence-Industrial Capability*
24. *Katalog_BBN_2024.indb*
25. *Microsoft Word - 2022.01.13 Raport Gospodarczego Gabinetu Cieni BCC - PRZEMYSŁ OBRONNY.docx*
26. *Ministerstwo Obrony Narodowej publikuje dane dotyczące środków kierowanych do krajowego przemysłu obronnego*
27. *Polski przemysł obronny w pigułce | MM Magazyn Przemysłowy*
28. *Raport: Polska branża zbrojeniowa 2024 | MM Magazyn Przemysłowy*
29. *The SIPRI Top 100 arms-producing and military services companies, 2023*

Jakub Horák
ORCID: https://orcid.org/0000-0001-6364-9745
Doctor in Economics, Vice Director for Science and Research
The School of Expertness and Valuation Institute of Technology and Business in České Budějovice
(České Budějovice, Czech Republic)

RECYCLING IN NORTHERN AND CENTRAL EUROPEAN COUNTRIES: APPROACHES AND CONDITIONS

https://doi.org/10.5281/zenodo.15709992

Abstract
Recycling is a key tool for minimizing the negative environmental impacts of waste management and advancing sustainable development. This study examines recycling systems in Central and Northern European countries, with a particular focus on a comparative analysis of the Czech Republic and Sweden. The aim is to analyze differences in recycling conditions and approaches while identifying factors that could enhance household participation in waste sorting. The research is based on a questionnaire survey conducted among residents of both countries, aiming to determine not only the current level of sorting, but also key motivators and barriers influencing household engagement in recycling. The results show that although general willingness to recycle is comparable in the Czech Republic and Sweden, significant differences exist in infrastructure, legislative frameworks, and the availability of recycling services. Additionally, the study suggests that clearer packaging labeling and standardized material composition could contribute to increasing recycling rates among consumers.

Keywords: *recycling, Czech Republic, Sweden, households, waste sorting.*

Introduction

The world is currently facing an escalating environmental crisis resulting from long-term human activities and their negative impact on natural ecosystems. Without the implementation of systematic measures to mitigate these impacts, the situation may worsen, leading to deteriorating climate conditions, depletion of natural

resources, and increasing volume of waste (Zhang et al., 2021). Lua et al. (2021) emphasize that in addition to addressing climate change, it is necessary to focus on ecological stability, which encompasses effective waste management and the promotion of recycling as a key tool for sustainable development. Governments of individual countries must implement appropriate legislative measures and encourage society to adopt more environmentally responsible consumption options (Rousek, 2019).

One of the most significant problems today is the dramatically increasing production of plastics and the associated accumulation of plastic waste in the environment. This phenomenon has serious ecological, economic, and social impact. While traditional mechanical recycling serves as an important tool to mitigate the impact of plastic waste, it is limited by material degradation and the need for consistent waste sorting. An alternative approach is chemical recycling, which allows the conversion of plastic waste into new raw materials, thereby reducing dependence on primary petrochemical sources (Pimonenko et al., 2020). In addition to recycling, the concept of a circular economy is increasingly emphasized, shifting the focus from mere waste sorting to broader strategies aimed at preventing its generation. The European Union actively supports the transition to this model, as it not only promotes more efficient use of raw materials but also contributes to waste reduction. Effective waste management is becoming a key element of sustainable development policy and a key objective of European environmental strategies (European Commission, 2018).

Consumer behavior plays a significant role in the effectiveness of recycling programs. As Pimonenko et al. (2020) state, the demand for environmentally friendly products is growing and more and more consumers are opting for products with a minimal ecological footprint. However, this trend is accompanied by the risk of so-called "greenwashing", where companies use environmental claims for marketing purposes without actually contributing to environmental protection. This problem undermines consumer trust and hinders the effective development of sustainable business models. Another challenge is the management of waste that cannot be recycled. Modern waste management increasingly incorporates technologies that facilitate the conversion of waste into energy. Pluskal et al.

(2022) point out that waste-to-energy (WtE) facilities can significantly contribute to the circular economy by utilizing waste that would otherwise end up in landfills. However, the effectiveness of these systems depends on the quality of waste sorting and the socio-economic conditions of individual regions. Therefore, it is necessary to strive to optimize waste collection and processing systems with the aim of achieving higher recycling rates and minimizing the volume of non-recyclable waste.

Household involvement in the recycling process is a key factor in the effectiveness of waste management strategies. Research shows that greater public awareness and availability of collection points positively influence citizens' willingness to sort waste (Williams et al., 2019).

Recycling is not only an ecological necessity in the era of climate crisis, but also a key element of a sustainable economy. Zhang et al. (2021) argue that effective waste management is essential for achieving global sustainable development. Browne et al. (2021) point out that current material innovations and high consumption levels in advanced economies pose a challenge to closing the recycling loop. As Gudmestad et al. (2019) state, recycling should be a priority in all aspects of society, but it is also necessary to address its negative impacts, such as the generation of impurities and waste by-products.

Modern waste management is constantly evolving and adapting to address new challenges related to environmental protection. While Nordic countries, such as Sweden, are often seen as role models in recycling, Central European countries (including the Czech Republic) are working to modernize their recycling systems and enhance citizens' motivation to sort waste (Limona and Villarina, 2020). Developments in this area show that a combination of technological innovation, household engagement, and regulatory measures is the key to successful transition to a fully operational circular economy.

As the present article examines recycling in the Czech Republic and Sweden, it is appropriate to mention several studies specifically applied to these countries.

In Sweden, increasing transparency and consumer trust in the recycling process is a key focus to boost recycling rates. Mehner et al. (2020) found that user-friendly and educational information can

positively influence people's perceptions of waste sorting. In addition, Limon and Villarina (2020) identified several factors that discourage public participation in recycling, such as lack of recycling facilities, limited training opportunities, and ineffective information dissemination.

Household waste recycling is widely regarded as a key element of sustainable waste management. In Sweden, tenants are expected to actively participate in waste sorting; however, in practice, certain groups of residents, such as foreigners facing language barriers, encounter difficulties in this process (Glad, 2018). In order to eliminate incorrect waste sorting, control measures and modern technologies have been introduced to optimize the recycling system. Rybová (2019) examined recycling behaviors and came to the conclusion that women are more likely to engage in recycling activities than men. The production of recyclable waste in the Czech Republic has historically been below the European average, although the share of municipal waste overall has been growing in recent years.

The objective of this paper is to analyze the differences in recycling conditions and approaches in Swedish and Czech households and compare these two countries. Additionally, it seeks to identify factors that could motivate residents of both countries to engage more actively in the recycling process.

To achieve this, the following research questions were formulated:

1. What are the differences in recycling between the Czech Republic and Sweden?
2. What conditions and factors influence the efficiency of recycling in these countries?
3. What measures could enhance waste sorting rates among the residents of the Czech Republic and Sweden?

Materials and Methods

The study uses a quantitative research approach to analyze the attitudes and behaviors of the population of the Czech Republic and Sweden in the field of recycling. The primary data collection tool will be an anonymous questionnaire survey conducted between November 1 and December 12, 2024, the aim of which is to answer

key research questions and thus fulfill the research objective. The online questionnaire will be administered online and targeted at the population of the Czech Republic and Sweden. It will be created using Google Forms and designed as bilingual, with each question presented first in Czech and then in Swedish. This approach ensures that respondents from both countries can answer in their native language, thereby minimizing the risk of language bias. The questionnaire is structured into several thematic sections corresponding to the research questions and contains a total of 19 questions. The first three serve to statistically determine the basic characteristics of the respondent, specifically: 1. Gender, 2. Age group, 3. Country of origin.

The next set of questions addresses the first research question: Do you sort waste at home? How long have you been recycling packaging? Why do you recycle? Why don't you recycle? Do you separate organic waste from inorganic waste? Do you use compost? For what materials do you have sorting containers at home?

The next three questions aim to answer the second research question: What sorting containers are available near your home? Do you think there are enough containers for sorted waste near your home? How far are the containers from your home?

The last six questions focus on the third research question, and answers to them may contribute to finding possible solutions: For which material do you lack a container in your area? Do you consider the material composition of product packaging when making purchases? Do you appreciate sorting instruction on product packaging? Would you sort more (or start sorting) if packaging included clear disposal instructions? Do you mind when a product is made of multiple types of material? If it was only made of a single material, would you sort more (or start sorting)?

After data collection, their analysis will be performed using descriptive statistics, supplemented by graphical visualizations. However, due to the extensive nature of the questionnaire survey, it will not be possible to present all results in the form of graphs. Therefore, only the most comprehensive and significant visualizations will be presented, while other relevant findings will be described in text.

Results and Discussion

The questionnaire was distributed via a shared link on social networks and was anonymously completed by a total of 210 respondents, with 105 responses from the Czech Republic and 105 from Sweden. The following section evaluates the results of the survey.

As for the gender of respondents, men made up 57% of the sample, while women accounted for 43%. This difference can be attributed to the demographics of the audience on the platform where the questionnaire was shared, as the most followers are men. In terms of age distribution, the largest group of respondents (57%) fell within the 0–19 age category, reflecting the demographic composition of the addressed group. The second largest category was respondents aged 20–29 years, comprising 35% of, while the age groups 30–39 years, 40–49 years and 50–59 years were represented significantly less, namely 5%, 2% and 1% each. In terms of national composition, the sample was evenly divided between the Czech Republic and Sweden, with 50% of respondents for each country. For a more precise comparison, respondents' answers are categorized by country, enabling an analysis of the differences between the Czech Republic and Sweden. Respondents from both countries provided comparable answers regarding waste sorting. In the Czech Republic, 93% of respondents reported that they sort waste, while 7% do not. In Sweden, the sorting rate was slightly higher at 96%, with 4% of respondents not engaging in waste sorting. The difference between the two countries is therefore minimal and amounts to only 3%. In terms of the duration of experience in recycling, the largest group in the Czech Republic (36%) has been sorting waste for more than 10 years. Another 23% of respondents have been recycling for 5–10 years, 17% for 3–5 years, 15% for 1–3 years, and only 1% for less than one year. The remaining 8% stated that they do not sort waste at all. In Sweden, the distribution of responses differs only in the details. The largest group of respondents (30%) has been recycling for more than 10 years, 28% have been sorting for 5–10 years, 18% for 3–5 years, 17% for 1–3 years, and 5% for less than one year. Only 3% of respondents do not engage in waste sorting, which indicates a slightly higher overall recycling rate compared to the Czech Republic.

The questionnaire survey also investigated the motivations driving residents of the Czech Republic and Sweden to recycle, as well as the barriers that hinder recycling. The reasons for recycling in both countries can be seen in Figure 5.4.

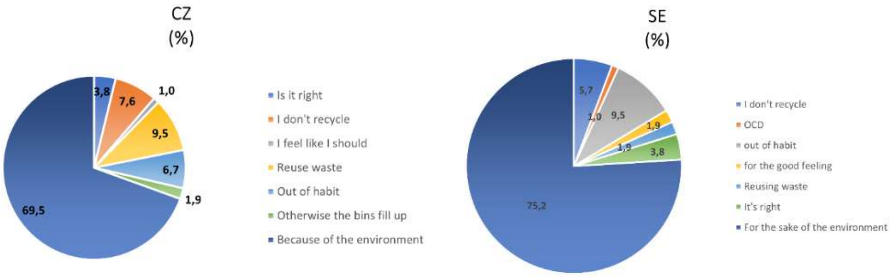


Figure 5.4 Reasons for recycling in the Czech Republic and Sweden

When asked "Why do you recycle?", the majority of respondents in both countries gave similar answers, with the primary motivation being to reduce the impact on the environment. In the Czech Republic, 70% of respondents selected this option, while in Sweden, 75% did. Additional reasons for recycling in the Czech Republic included the possibility of reusing waste (10%), a long-standing habit (7%), the belief that it is the right thing to do (4%), the desire to prevent overfilling of unsorted waste bins (2%), and the perception that recycling should be done (1%). A total of 8% of Czech respondents stated that they do not sort waste at all. In Sweden, additional reasons for sorting waste included a long-standing habit (10%), the belief that sorting is correct (4%), the possibility of reusing materials (2%), the positive feeling associated with recycling (2%), and, in one case, it was stated that waste sorting is related to obsessive-compulsive disorder (1%). A total of 6% of respondents reported that they do not engage in waste sorting.

The reasons why some respondents do not sort their waste vary slightly from country to country. In Czech households, the primary obstacles include the perceived time required and complexity of recycling (5%), the influence of parents who do not sort at home (2%), and the lack of sorting containers in the area (1%). In Sweden,

respondents identified the lack of space for sorting at home (3%), the perceived complexity of recycling (2%), and 1% of respondents believing that sorting waste is unnecessary as the main obstacles.

The questionnaire also examined whether respondents separate organic waste from inorganic waste and whether they use compost. The results indicated that in the Czech Republic, 68% of respondents separate organic waste, while 32% do not. In Sweden, the proportion is slightly lower, with 64% of respondents sorting organic waste and 36% not separating it. Regarding compost usage, the survey revealed that 59% of respondents in the Czech Republic reported using compost, whereas 41% do not. In Sweden, the rate of compost use is higher – 70% of respondents stated this option, while 30% of respondents do not use compost.

Another question focused on the availability of sorting containers in the respondents' households. The findings presented in figure showed that in the Czech Republic, the most common sorting containers are for paper (26%) and plastic (25%), followed by glass (20%). Biowaste containers are present in 12% of households, followed by containers for other materials including metal (6%), cardboard (4.5%), oil (3%) and batteries (2.5%). In Swedish households, the most frequently sorted materials are plastic (24%) and paper (23%), followed by, as in the Czech Republic, glass (17.5%), metal (16%), and biowaste (11%). Cardboard and batteries are other materials being sorted, accounting for 5% and 2% of households, respectively. In one case, flammable material was also mentioned.

Another question examined the availability of sorting containers in the residential areas of respondents, offering an overview of the local recycling infrastructure and available waste management options.

In the Czech Republic, the most frequently mentioned sorting containers were for plastic (23%) and paper (21%), followed by glass (18%), beverage cartons (12%), and metal (10%). Textile containers also had a notable presence (6%), while containers for electrical waste (5%) were reported more often than those for biowaste (4%). Oil containers had the lowest presence (2%). In Sweden, the most common sorting containers were for plastic (20%) and paper (21%), but biowaste containers ranked third (19%), which had a

significantly higher presence than in the Czech Republic. This was followed by glass (17%) and metal packaging (12%). Beverage cartons were available in the vicinity of only 2% of respondents. Containers for electrical waste (7%) had a higher presence than in the Czech Republic. The results indicate that in Sweden the availability of sorting containers for biowaste and e-waste is better than in the Czech Republic, while beverage cartons and textile containers are more commonly available in the Czech Republic.

The availability of sorting containers and their location in residential areas are key factors influencing the efficiency of recycling. Therefore, the survey also included a question regarding the respondents' satisfaction with the number of sorting containers in their area. In the Czech Republic, 27% of respondents expressed dissatisfaction with the insufficient number of containers, whereas in Sweden, this percentage was lower, specifically 15%. These findings suggest that Swedish residents perceive the recycling infrastructure as more sufficient compared to the Czech Republic. Another aspect examined was the distance to the nearest sorting containers from the place of residence. In both countries, the largest share of respondents reported having containers located within 50 meters of their residence, specifically, 41% in the Czech Republic and 40% in Sweden. The second most frequently reported distance was 51–150 meters, reported by 33% of Czech and 29% of Swedish respondents. A distance of 151–250 meters was reported by 13% of respondents in the Czech Republic and 18% in Sweden. A greater difference between the two countries emerged for longer distances, where 7% of Czech and 4% of Swedish respondents reported a distance of 251–500 meters, while 6% of Czech and 10% of Swedish respondents stated that they must walk more than 500 meters to reach the nearest sorting containers. The results show that although sorting containers in both countries are generally located close to residential areas, they tend to be positioned slightly farther from home in Sweden than in the Czech Republic. The next question focused on finding out which types of sorting containers respondents felt were missing in their area.

The results suggest that overall satisfaction with the availability of sorting containers was higher in Sweden than in the Czech Republic. In Sweden, 84% of respondents expressed satisfaction,

compared to 67% in the Czech Republic. The responses in the Czech Republic were more varied, indicating greater disparities in access to collection points. Biowaste was most frequently mentioned (11%), followed by oils (6%), metals, and electronic waste (both 4%). Some respondents also mentioned the absence of containers for plastic (3%), paper (3%), cardboard, and textiles (both 2%). In Sweden, the demand for additional containers was less diverse, with textiles being the most commonly mentioned (6%), followed by paper (4%), electronic waste (3%), biowaste (2%) and plastics (2%). Another aspect of recycling behavior examined in the study was consumers´ interest in the composition of packaging materials and the information provided regarding their disposal. The findings revealed that the majority of respondents in both countries showed limited interest in the composition of packaging. In the Czech Republic, 64% of respondents expressed disinterest, while in Sweden, it was 62%. This suggests that for most individuals, the material composition of packaging is not a determining factor in deciding to engage in waste sorting.

On the contrary, information on proper sorting of packaging was perceived positively by respondents in both countries. In Sweden, 72% of respondents appreciated this information, while in the Czech Republic, it was 71%. Approximately one fifth of respondents in both countries stated that they were not opposed to sorting instruction on packaging, they did not consider them particularly important (21% in the Czech Republic and 24% in Sweden). Only 8% of respondents in the Czech Republic and 4% in Sweden expressed a negative attitude towards sorting labels, which confirms that the majority of consumers would welcome clear instructions that facilitate waste sorting.

The study also investigated whether placing specific sorting instructions on product packaging would encourage residents of the Czech Republic and Sweden to recycle more often.

As illustrated by the results, 79% of Czech and 83% of Swedish respondents state they would engage in recycling more if the packaging clearly indicated the appropriate sorting method. Conversely, 21% of Czech and 17% of Swedish respondents reported that this information would not influence their recycling behavior.

The study also investigated whether respondents in the Czech Republic and Sweden were concerned about products composed of multiple materials, which can complicate their recycling. The results showed that this aspect was a concern for 45% of respondents from the Czech Republic and 47% of respondents from Sweden. For 30% of Czechs and 27% of Swedish respondents, the composition of the materials was not important, while 26% of Czechs and 28% of Swedish respondents stated that they did not perceive it as problematic. The final question focused on the impact of material composition of products on the willingness to sort. The results showed that 79% of Czech and 76% of Swedish respondents would be more inclined to sort waste products were made from a single type of material, which would facilitate the recycling process. In contrast, 21% of

Czech and 24% of Swedish respondents stated that their recycling behavior would remain unchanged regardless of material composition.

Based on the findings of this study, the pre-defined research questions can be answered and key insights into recycling practices in the Czech Republic and Sweden can be summarized. The analysis identified the main differences in recycling behavior, factors influencing the efficiency of waste sorting, and potential strategies to increase recycling rates in both countries were identified.

1. What are the differences in recycling between the Czech Republic and Sweden?

The results indicate that the overall recycling rates are relatively high in both countries, with a slightly higher proportion of respondents engaging in recycling in Sweden compared to the Czech Republic. In both countries, the primary motivation for recycling is environmental protection. However, the reasons for not participating in recycling differ, as in the Czech Republic, respondents stated that waste sorting is more complicated than disposing of waste in unsorted waste, while in Sweden, the main obstacle is lack of space in households. Differences were also recorded in sorting organic waste, as Sweden has a more developed system of sorting biowaste, while in the Czech Republic, a smaller percentage of households separate this type of waste.

2. What conditions and factors influence the efficiency of recycling in these countries?

The conditions for waste sorting in the Czech Republic and Sweden differ mainly in the availability and variety of collection containers. Although the average distance to collection points is comparable in both countries, Czech respondents are less satisfied with the number and variety of available containers. The most notable problem in the Czech Republic is the insufficient number of containers for biowaste, which correlates with the lower rate of biowaste separation. In contrast, in Sweden, the system of sorting biowaste is more developed, and the absence of containers for used oils is not perceived as a major issue by residents. Overall, Swedish respondents report better conditions for recycling and higher satisfaction with the recycling infrastructure.

3. What measures could enhance waste sorting rates among residents of the Czech Republic and Sweden?

One of the key factors that could increase recycling rates is clearer labeling of packaging with information on proper waste sorting. More than three quarters of respondents indicated that such information would be beneficial, and the majority also stated that it would encourage them to recycle more often. Another important aspect is the simplification of packaging composition, as many respondents in both countries expressed concerns about multi-material packaging, which complicates waste sorting.

The overall findings of the study suggest that while recycling attitude is similar in both countries, Sweden has a more efficient infrastructure that allows for higher sorting rates. In contrast, Czech respondents report greater dissatisfaction with the availability and variety of containers, which may contribute to lower recycling participation. A possible solution to increase the efficiency of recycling is not only improving the infrastructure, but also greater emphasis on consumer awareness and a shift towards simpler, more recyclable product packaging.

Conclusions

Recycling plays a crucial role in sustainable waste management and mitigating negative impacts on the environment. A well-designed recycling system contributes not only to the protection of

natural resources but also to more efficient management of materials and a reduction in landfill waste. However, recycling rates and public willingness to engage in waste sorting vary across countries, depending on, for example, the available infrastructure, legislation, or consumer behavior.

This study focused on comparing recycling practices in the Czech Republic and Sweden, aiming to identify differences between these two countries in the area of recycling, assess which of them provides better conditions for waste sorting, and determine which factors could encourage residents to participate in recycling. Data was collected through a questionnaire survey distributed among residents of both countries via social networks, with a total of 210 respondents participating in the research. The answers provided the basis for the analysis of recycling habits and conditions in both countries.

The findings indicate that recycling is a common practice in both countries, with Sweden showing a slightly higher proportion of the population involved in waste sorting. This difference can be partly attributed to better infrastructure and greater accessibility of recycling facilities. Czech respondents expressed lower satisfaction with the number and variety of sorting containers, particularly for biowaste, which may be one of the factors influencing their lower recycling rate in this category.

One of the key findings of the study is also the fact that simplifying the waste sorting process at the household level could significantly enhance recycling rates. A majority of respondents stated that they would sort more if product packaging were composed of a single material and included clear sorting instructions. This finding is relevant not only for product packaging manufacturers, but also for municipalities and cities aiming to enhance public awareness and education on proper waste sorting.

The findings of this study can serve as a basis not only for companies seeking to redesign product packaging to enhance recyclability but also as feedback for municipalities and cities in planning and optimizing recycling infrastructure. By improving waste sorting systems, policymakers can increase overall efficiency and enhance public satisfaction with available recycling options.

Acknowledgements

This research was supported by the Specific University Research Project No. 05SVV2306 entitled "Digitization of Educational Materials". The author of the article also thanks the student Lucie Kertészová for her cooperation in carrying out the research.

References:

1. *Browne, C. A., Moloney, B. (2021). Recycling or Rubbish? Understanding Decision-Making in Household Recycling Programs. Smart and Sustainable Manufacturing Systems, Vol. 5, Issue 2. https://doi.org/10.1520/SSMS20200007*
2. *Glad, W. (2018). Spaces for Waste: Everyday Recycling and Sociospatial Relationships. Scottish Geographical Journal, Vol. 134, Issue 3-4, pp. 141-157. ISSN 1470-2541. doi:10.1080/14702541.2018.1500634*
3. *Gudmestad, O. (2019). Concerns to Be Considered During Recycling Operations. Resources, Vol. 8, Issue 2. https://doi.org/10.3390/resources8020076*
4. *Limon, M. R., Villarino, C. B. J. (2020). Knowledge, Attitudes and Practices on Household Food Waste: Bases for Formulation of a Recycling System. Global Journal of Environmental Science and Management, Vol. 6, Issue 3, pp. 323-340.*
5. *Luo, Y. U.-Z., Lin-Hao, L.-H., Xiao, Y.-M., Wang, S.-L., Tong, Y.-Y. (2021). Environmental Transformational Leadership and Environmental Organizational Citizenship Behaviour – The Impact of Relatedness. Journal of Environmental Protection and Ecology, Vol. 22, Issue 2, pp. 866-873.*
6. *Mehner, E., Naidoo, A., Hellwig, C., Bolton, K., Rousta, K. (2020). The Influence of User-Adapted, Instructive Information on Participation in a Recycling Scheme: A Case Study in a Medium-Sized Swedish City. Recycling, Vol. 5, Issue 2.*
7. *Pimonenko, T., et al. (2020). Green Brand of Companies and Greenwashing Under Sustainable Development Goals. Sustainability, Vol. 12, Issue 4. doi:10.3390/su12041679*
8. *Pluskal, J., et al. (2022). Optimal Location and Operation of Waste-to-Energy Plants When Future Waste Composition is Uncertain. Operational Research. ISSN 1109-2858. doi:10.1007/s12351-022-00718-w*
9. *Rousek, P. (2019). Environmental Footprint Evaluation of Eco-Friendly Products in the Global Economy. SHS Web of Conferences, Vol. 61, Issue 1. doi:10.1051/shsconf/20196101022*
10. *Rybová, K. (2019). Do Sociodemographic Characteristics in Waste*

Management Matter? Case Study of Recyclable Generation in the Czech Republic. Sustainability, Vol. 11, Issue 7.

11. *Zhang, F., Wang, H., Wu, X. (2021). The Impact of Government Subsidies on Single-Channel Recycling Based on Recycling Propaganda. Energies, Vol. 14, Issue 23. https://doi.org/10.3390/en14238189*

Oleksii Hutsaliuk
ORCID: https://orcid.org/0000-0002-6541-4912
Doctor of Economics Sc., Professor,
Vice-Rector for Scientific and Pedagogical Activities
Private Higher Education Institution "Rauf Ablyazov East European University"
(Cherkasy, Ukraine)

SOCIAL RESPONSIBILITY OF CORPORATE COMPANIES IN THE SYSTEM OF CROSS-BORDER ENTREPRENEURIAL RELATIONS

https://doi.org/10.5281/zenodo.15710011

Abstract
This chapter explores the role of corporate social responsibility (CSR) in the context of cross-border entrepreneurial relations. It reveals the essence of CSR as a vital component of modern business strategy, especially under the conditions of economic globalization. The chapter analyzes key mechanisms for implementing CSR at the international level, including ethical standards, environmental policies, social initiatives, and engagement with local communities. Particular attention is paid to the challenges and opportunities faced by transnational corporations when implementing CSR across various countries, considering legal, cultural, and economic differences. The impact of CSR on strengthening corporate reputation, enhancing competitiveness, and fostering a sustainable business environment is outlined.
The chapter also examines current trends in the development of CSR in the international business environment, as well as its influence on the strategic management of companies operating in multiple jurisdictions. It presents examples of successful implementation of socially responsible practices by transnational corporations and characterizes the barriers companies face in different countries, such as legal constraints, differences in transparency standards, and the level of civil society development. Special focus is placed on the interrelation between CSR, international corporate reputation, and the trust of consumers, partners, and public authorities. The need to integrate CSR principles into corporate business models is substantiated as a prerequisite for long-term sustainable development in the face of global challenges.

Keywords: *corporate social responsibility, cross-border relations, transnational companies, entrepreneurship, sustainable development, business ethics, globalization.*

Corporate social responsibility (CSR) plays a crucial role in shaping the ethical, social, and environmental dimensions of cross-border entrepreneurial activities. As companies expand beyond national boundaries, they face diverse regulatory systems, cultural norms, and stakeholder expectations. CSR serves as a strategic tool that helps corporate entities align their business practices with international standards and local community values, fostering trust, legitimacy, and long-term partnerships.

In the context of cross-border relations, CSR enhances a company's global reputation and strengthens its brand image by demonstrating commitment to ethical conduct, human rights, fair labor practices, environmental sustainability, and community development. It also contributes to risk mitigation by helping companies anticipate and respond to socio-political and environmental challenges in different regions.

Moreover, CSR initiatives facilitate smoother market entry and operations in foreign countries by promoting social license to operate – building goodwill among local stakeholders, including governments, consumers, NGOs, and employees. They also help harmonize corporate goals with global sustainable development agendas, such as the UN Sustainable Development Goals (SDGs).

Ultimately, CSR in cross-border entrepreneurship is not just a matter of compliance or philanthropy; it is a core element of corporate governance and strategic decision-making that drives innovation, competitiveness, and sustainable growth across diverse markets.

Corporate Social Responsibility (CSR) is a concept that reflects a company's commitment to operate ethically and contribute to economic development while improving the quality of life of its workforce, local communities, and society at large. In today's globalized economy, CSR has evolved from being a voluntary or philanthropic activity to a strategic necessity embedded in the core operations and long-term planning of modern businesses.

At its core, CSR encompasses responsible corporate behavior in

areas such as environmental sustainability, ethical labor practices, transparent governance, stakeholder engagement, and social investment. It goes beyond compliance with laws and regulations, encouraging companies to proactively address the broader social and environmental impacts of their operations.

In the era of globalization, businesses are increasingly interconnected across borders, operating in complex networks of suppliers, partners, and markets. This interconnectedness amplifies the visibility of corporate actions and heightens expectations from global stakeholders – including consumers, investors, civil society, and governments. As a result, CSR has become an integral part of risk management, brand positioning, and competitive advantage.

Moreover, CSR supports sustainable development by aligning business objectives with global priorities, such as the United Nations Sustainable Development Goals (SDGs). It enables companies to build resilient supply chains, foster innovation through sustainability, and maintain long-term profitability while contributing to societal well-being.

In essence, CSR in the globalized economy is not merely a supplementary activity – it is a strategic imperative that defines how a business creates value in a responsible, inclusive, and future-oriented manner.

The implementation of Corporate Social Responsibility (CSR) on an international scale involves a multifaceted approach that integrates ethical, environmental, social, and community-oriented practices into business operations. As corporations expand globally, the need for consistent, credible, and culturally adaptive CSR mechanisms becomes increasingly important. The following are key pillars that support the effective execution of CSR across borders:

Ethical Standards. Ethical conduct serves as the foundation of international CSR. Companies adopt global frameworks such as the UN Global Compact, the OECD Guidelines for Multinational Enterprises, and ISO 26000 to ensure adherence to principles of human rights, anti-corruption, labor standards, and transparency. Establishing codes of ethics, corporate governance policies, and compliance systems helps businesses align their operations with internationally recognized values, especially when navigating diverse legal and cultural environments.

Environmental Policy. Environmental sustainability is a central component of CSR, particularly in the face of global climate challenges. Corporations implement green policies focused on reducing carbon emissions, conserving natural resources, managing waste, and adopting renewable energy sources. Standards like ISO 14001 (Environmental Management Systems) guide companies in creating environmentally responsible strategies. Multinational firms often develop environmental stewardship programs that go beyond regulatory compliance and demonstrate leadership in climate action.

Social Initiatives. CSR at the global level also encompasses proactive efforts to support social development. This includes initiatives in education, healthcare, gender equality, diversity and inclusion, and fair labor practices. Companies may partner with NGOs, international development agencies, or local governments to fund and implement projects that address social inequalities. Such initiatives not only fulfill ethical obligations but also strengthen the social license to operate in diverse regions.

Engagement with Local Communities. Successful international CSR strategies prioritize meaningful engagement with local communities. This involves stakeholder consultations, community investment programs, respect for local cultures and traditions, and mechanisms for dialogue and grievance resolution. By involving local actors in decision-making processes and ensuring that development efforts align with community needs, corporations build trust and ensure long-term sustainability of their presence.

Effective international CSR requires a holistic integration of ethical governance, environmental responsibility, social empowerment, and community involvement. These mechanisms not only ensure compliance and risk management but also contribute to a company's global reputation, stakeholder loyalty, and sustainable growth. In a rapidly globalizing world, CSR is no longer a peripheral function – it is a strategic driver of international corporate success.

Special attention must be given to the complex landscape in which transnational corporations (TNCs) operate when implementing Corporate Social Responsibility (CSR) in different countries. The success of CSR strategies largely depends on how well companies can adapt to the diverse legal frameworks, cultural contexts, and economic conditions of the host nations. These differences present

both significant challenges and valuable opportunities.

Legal Challenges and Opportunities. One of the primary challenges is navigating varying legal systems and regulatory environments. While some countries enforce strict environmental, labor, and governance standards, others may have weak regulatory enforcement or lack comprehensive CSR-related legislation. This inconsistency can create compliance difficulties and reputational risks for TNCs. However, it also presents an opportunity for corporations to set higher internal standards and position themselves as ethical leaders in regions where CSR is still emerging, thus influencing policy development and industry practices.

Cultural Differences. Cultural norms and societal expectations significantly influence how CSR is perceived and practiced. For example, what is considered a meaningful community investment in one culture may be seen as insufficient or inappropriate in another. Language, religious values, traditions, and views on corporate involvement in social issues vary widely. TNCs must invest in cultural intelligence, engage local stakeholders, and adapt their CSR initiatives to be contextually relevant and respectful. Doing so fosters stronger community relationships and enhances local acceptance.

Economic Disparities. Economic conditions in host countries also shape CSR implementation. In lower-income regions, expectations may focus on basic infrastructure, job creation, education, and health services, while in more developed economies, stakeholders may demand climate action, ethical supply chains, and transparency. For TNCs, this creates opportunities to tailor CSR efforts to address urgent local needs, improve quality of life, and build inclusive growth. Moreover, CSR can serve as a tool to mitigate socio-economic tensions and contribute to long-term market stability.

Implementing CSR in a transnational context requires a nuanced, adaptive approach that respects local realities while upholding global ethical standards. By recognizing and navigating legal, cultural, and economic differences, corporations can not only overcome obstacles but also unlock opportunities for innovation, trust-building, and sustainable development. Such strategic integration of CSR enhances both corporate value and societal impact across borders.

Corporate Social Responsibility (CSR) plays a pivotal role in shaping a company’s reputation, enhancing its competitiveness, and

contributing to the development of a sustainable entrepreneurial ecosystem.

Reputation Building. A strong commitment to CSR significantly enhances a company's public image and stakeholder trust. Consumers, investors, partners, and the wider public are increasingly attentive to how businesses address social, environmental, and ethical issues. Transparent and consistent CSR practices signal integrity and accountability, reinforcing a company's credibility in both local and global markets. A positive reputation not only protects against crises and reputational risks but also attracts loyal customers and socially conscious investors.

Improved Competitiveness. CSR also strengthens a company's competitive edge. Responsible business practices often lead to greater operational efficiency, innovation, and long-term cost savings –especially in areas such as energy use, waste management, and supply chain optimization. Moreover, companies with robust CSR programs are better positioned to attract and retain top talent, respond to regulatory changes, and access new markets where ethical standards and sustainability are prerequisites for entry. In competitive markets, CSR becomes a distinguishing factor that can influence consumer choice and partner collaboration.

Fostering a Sustainable Business Environment. Beyond individual corporate benefits, CSR contributes to the development of a sustainable business environment as a whole. By promoting ethical practices, social equity, and environmental stewardship, companies support the creation of stable, resilient communities and economies. CSR-driven collaboration among businesses, governments, and civil society helps address systemic challenges – such as climate change, inequality, and resource scarcity – while fostering inclusive growth and innovation. In this way, CSR helps to ensure that the broader business ecosystem thrives in a responsible and future-oriented manner.

The strategic integration of CSR not only enhances a company's reputation and market position but also plays a transformative role in building a sustainable and equitable global economy. In an era defined by transparency and stakeholder expectations, CSR is no longer optional – it is a core driver of long-term business success.

In today's global economy, Corporate Social Responsibility

(CSR) is undergoing a significant transformation, evolving from a peripheral corporate activity into a central component of international business strategy. As global challenges such as climate change, inequality, and geopolitical instability intensify, CSR is becoming increasingly integrated into the core operations and strategic planning of companies operating across multiple jurisdictions.

Current Trends in International CSR. From Voluntary to Strategic CSR. CSR is no longer seen as optional or philanthropic – it is becoming a strategic imperative. Companies are embedding CSR into their value chains, aligning it with business goals, and using it as a tool for risk management, market differentiation, and long-term value creation.

Alignment with Global Frameworks. Businesses are increasingly aligning their CSR strategies with international standards and frameworks, such as the United Nations Sustainable Development Goals (SDGs), the UN Global Compact, and ESG (Environmental, Social, and Governance) criteria. These global benchmarks help ensure consistency, transparency, and comparability across markets.

Stakeholder-Centric Approach. There is a shift from shareholder-driven models to stakeholder-inclusive strategies. Companies are engaging more actively with employees, consumers, local communities, investors, and regulators to shape CSR initiatives that are relevant and impactful in different contexts.

Digitalization and Transparency. Technology is playing a growing role in CSR reporting and stakeholder engagement. Real-time data, blockchain for supply chain transparency, and digital platforms for ESG disclosures are enhancing accountability and enabling more effective communication of CSR outcomes.

Focus on Climate and Human Rights. Climate action, carbon neutrality, circular economy models, and human rights due diligence are at the forefront of international CSR agendas. Multinational companies are under growing pressure to demonstrate environmental responsibility and ethical supply chain practices.

Impact on Strategic Management in Multijurisdictional Companies

Operating in multiple jurisdictions requires companies to manage diverse legal systems, cultural expectations, and socioeconomic

conditions.

CSR influences strategic decision-making in the following ways:

Risk Mitigation and Compliance: CSR helps companies anticipate regulatory changes, avoid reputational damage, and ensure compliance with both local and international laws.

Global Reputation Management: Strategically coordinated CSR enhances brand consistency across markets while allowing local adaptation, contributing to a unified and positive global corporate identity.

Operational Integration: CSR drives the integration of sustainability into operations, influencing procurement, logistics, product development, and employee policies.

Leadership and Innovation: Forward-thinking CSR strategies position companies as leaders in responsible innovation, attracting investors, partners, and customers who value sustainability and ethics.

The evolution of CSR in the international business environment reflects a broader shift toward sustainable and inclusive capitalism. For companies operating in multiple jurisdictions, strategic CSR is not only a response to stakeholder demands but a powerful instrument for managing complexity, driving innovation, and securing long-term success in a rapidly changing world.

Successful CSR Practices by Transnational Corporations.

Unilever. Unilever has integrated sustainability into its core strategy through the Unilever Sustainable Living Plan, which focuses on improving health and well-being, reducing environmental impact, and enhancing livelihoods. The company works with local suppliers to promote fair labor practices and supports smallholder farmers with training and resources to ensure sustainable sourcing.

Microsoft. Microsoft has implemented global CSR programs focused on digital inclusion, accessibility, and education. Its AI for Good initiative supports non-profits and research institutions in using artificial intelligence to address global challenges such as climate change, accessibility, and humanitarian crises.

Nestlé. Nestlé's Creating Shared Value (CSV) strategy promotes economic and social progress in communities where it operates. The company has invested in clean water infrastructure, rural development, and child nutrition programs in developing countries,

aligning its operations with local needs and global sustainability goals.

Patagonia. The outdoor clothing brand Patagonia is known for its commitment to environmental and social responsibility. It donates a portion of profits to environmental causes, promotes fair labor practices in its supply chain, and advocates for environmental activism through campaigns and public policy engagement.

Barriers Faced by Transnational Corporations in CSR Implementation. Despite their efforts, transnational corporations (TNCs) face several obstacles when implementing CSR initiatives across diverse countries:

Legal and Regulatory Constraints Regulatory environments vary widely, and some countries lack comprehensive CSR-related laws or enforce them inconsistently. This can lead to legal uncertainty, especially in areas such as labor rights, environmental protection, and taxation. For example, differing data protection laws may complicate global CSR reporting and digital inclusion efforts.

Variations in Transparency Standards. There is a lack of uniform standards for corporate disclosure and transparency across countries. In some regions, weak governance and corruption make it difficult to ensure accountability and measure CSR impact reliably. This can undermine stakeholder trust and complicate cross-border compliance.

Cultural and Social Norms. Cultural differences affect how CSR is perceived and practiced. For instance, in collectivist societies, community-oriented CSR efforts are more effective, while individual-focused initiatives may be less impactful. Misunderstanding local values can lead to ineffective or even counterproductive programs.

Uneven Development of Civil Society. In countries with a weak or underdeveloped civil society sector, there may be limited opportunities for corporate partnerships with NGOs or community organizations. This restricts the potential for impactful CSR collaboration and limits external pressure on companies to uphold high standards.

Political and Economic Instability. Operating in regions affected by conflict, corruption, or economic volatility presents risks to CSR implementation. It can be difficult to maintain long-term initiatives

or ensure employee and community safety under such conditions.

While many transnational corporations have successfully integrated CSR into their global operations, they must continuously adapt their strategies to overcome legal, cultural, and institutional challenges. Understanding local contexts and fostering transparent, inclusive, and responsive CSR practices are essential for achieving meaningful and sustainable impact across international markets.

Conclusions. Corporate Social Responsibility (CSR) has emerged as a fundamental pillar of modern business strategy, particularly in the context of cross-border entrepreneurial relations. As companies operate increasingly in global and multicultural environments, CSR plays a crucial role in aligning corporate goals with ethical standards, environmental sustainability, and social well-being across diverse markets.

The essence of CSR lies in the integration of responsible business practices that go beyond mere legal compliance to proactively address the broader social, environmental, and economic impacts of corporate activities. This strategic approach not only enhances a company's reputation but also strengthens its competitiveness by fostering innovation, improving operational efficiency, and securing stakeholder trust.

Key mechanisms for effective CSR implementation on the international stage include adherence to ethical standards, comprehensive environmental policies, active social initiatives, and genuine engagement with local communities. These elements enable corporations to navigate the complexities of varying legal systems, cultural norms, and economic conditions, thereby building sustainable and mutually beneficial relationships in foreign markets.

Transnational corporations face significant challenges when implementing CSR across different jurisdictions, including legal restrictions, inconsistent transparency standards, cultural diversity, and differing levels of civil society development. However, these challenges also present opportunities for companies to demonstrate leadership by setting higher internal standards, fostering inclusive growth, and contributing to global sustainable development goals.

Moreover, contemporary trends reveal a shift toward strategic and stakeholder-centric CSR models that align with global frameworks such as the UN Sustainable Development Goals (SDGs) and

Environmental, Social, and Governance (ESG) criteria. Digital technologies further enhance transparency and stakeholder engagement, while climate action and human rights considerations gain prominence in corporate agendas.

Successful examples of CSR in transnational corporations – such as Unilever, Microsoft, Nestlé, and Patagonia – illustrate how socially responsible practices can be integrated into global operations, creating shared value for both business and society. Yet, companies must remain adaptable, culturally sensitive, and legally compliant to overcome barriers and achieve meaningful impact.

In conclusion, CSR in the context of cross-border entrepreneurial relations is not merely a supplementary activity but a vital strategic imperative. It fosters corporate resilience, supports sustainable development, and contributes to building trust and legitimacy in a globalized economy. For corporations aiming at long-term success, embedding CSR into their core business models is essential for creating value that benefits shareholders, communities, and the planet alike.

References:

1. *Atestor. (2021). International CSR standards. https://shorturl.cusu.edu.ua/fn*
2. *Business Insights. (2022). https://www.reptrak.com/globalreptrak/#2zzmhhdAPWprMriaiKHNlc*
3. *Chuprina, M. (2023). Corporate Social Responsibility: A Textbook. Kyiv: Igor Sikorsky Kyiv Polytechnic Institute.*
4. *Hutsaliuk, O., Tsaturian, R., Kalinin, O., Gedz, M., Buhaieva, M., Kramskyi, S., Navolokina, A. (2024). Technological Synergy of Engineering Integrating in Digitalization Economy, Nanotechnology and Intelligent Digital Marketing for Corporate Enterprises in Provisions of their Economic Security. Nanotechnology Perceptions, Vol. 20 (S8), pp. 348–366. https://doi.org/10.62441/nano-ntp.vi.1295*
5. *Hutsaliuk, O., Yakusheva, O., Miroshnychenko, I., Taburets, I. (2025). Corporate Social Responsibility Management and Business Strategies in Sustainable Economic Development. Economics Ecology Socium, Vol. 9, Iss. 1, pp. 90–101. https://doi.org/10.61954/2616-7107/2025.9.1-8*
6. *Kalinin, O., Gonchar, V., Abliazova, N., Filipishyna, L., Onofriichuk, O., & Maltsev, M. (2024). Enhancing economic security through digital transformation in investment processes: Theoretical perspectives and*

methodological approaches integrating environmental sustainability. Natural and Engineering Sciences, Vol. 9(1), pp. 26–45. https://doi.org/10.28978/nesciences.1469858

7. *Kolodiziev, O., Shcherbak, V., Krupka, M., Kovalenko, V., Kolodizieva, T. & Yatsenko, V. (2023). The social responsibility of dual education in an unstable environment. International Journal of Human Capital in Urban Management, Vol. 8(3), pp. 303-316. https://doi.org/10.22034/IJHCUM.2023.03.01*
8. *Korneyev, M., Pylypenko A., Popov, O., & Shmatko, N. (2019). Organized management of decentralized economic production systems with joint implementation of development projects. Eastern-European Journal of Enterprise Technologies, Vol. 4/3 (100), pp. 22–35. https://doi.org/10.15587/1729-4061.2019.175765*

Ramutė Narkūnienė
ORCID: https://orcid.org/0000-0002-8045-375X
PhD in Management, Associate Professor, Department of Business and Public Management
Utena Higher Education Institution (Utena, Lithuania)

ANALYSIS OF FACTORS FOR SUSTAINABLE DEVELOPMENT OF THE TOURISM SECTOR

https://doi.org/10.5281/zenodo.15710025

Abstract
The article analyses the factors for sustainable development of the tourism sector from the theoretical point of view, the analysis of the factors for sustainable development of the tourism sector presented by different authors was carried out. The analysed topic is relevant because as sustainable development is considered a paradigm that describes the future of this sector. The main factors for sustainable development of the tourism sector in tourist regions were identified.

Keywords: *tourism sector, factors for sustainable development.*

Introduction

Researchers are studying the impact of sustainable development on the tourism sector, as sustainable development is considered a paradigm that describes the future of this sector (Grilli, Tyllianakis, Luisetti, Ferrini, Turner, 2021; Pan, Gao, Kim, Shah, Pei, Chiang, 2018 and others). For this reason, these relationships are increasingly being studied, highlighting the importance of increasing sustainable development in the tourism sector, while identifying sustainable development as a key measure of competitiveness (Niñerola, Sánchez-Rebull, Hernández-Lara, 2019; Goffi, Cucculelli, Masiero, 2019; Buckley, 2012 and others).

Research object: factors for sustainable development of the tourism sector.

The purpose of the study: after conducting a theoretical study, to distinguish the factors for sustainable development of the tourism sector.

Research tasks:

1. To study the concept of the factors for sustainable development of the tourism sector in a theoretical aspect;
2. To distinguish factors for sustainable development of the tourism sector.

Research methods: analysis of scientific literature, generalization, comparative analysis. The methods of scientific literature analysis, summarization and comparative analysis are applied to study the concept of the factors for sustainable development of the tourism sector.

Analysis of the factors for sustainable development of the tourism sector

In order to achieve the competitiveness of a tourist region and to plan tourism activities in the regions, the concept of sustainable tourism development should be applied – a fundamental principle of future development that dates back to 1980 and has recently been widely recognised. The foundations of the concept of sustainable development were formulated in 1980 in the document "World Conservation Strategy", published on behalf of three international institutions – the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme (UNEP) and the World Wildlife Fund (WWF), which states that the rational use of natural resources is an integral part not only of social development but also of environmental protection. The concept of sustainable development was formulated in the report of the World Commission on Environment and Development "Our Common Future" (1987): "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Agenda 21, adopted by the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, establishes sustainable development as a fundamental and long-term strategy for the development of society, and the Sustainable Tourism Conference held in Lanzarote in 1995 approved the Charter for Sustainable Tourism, the first principle of which states that tourism development must be based on sustainability criteria: a long-term approach to environmental and economic viability, as well as ethical and social justice towards local

communities. In 2001, the UN General Assembly established the general guidelines for sustainable development of the tourism sector: "Sustainable tourism development meets the present needs of tourists and host regions, while protecting and enhancing the ability to meet future needs. Sustainable development of the tourism sector is intended to be the basis for the management of all resources in such a way that economic, social and aesthetic needs are met, while preserving cultural integrity, continuing essential economic processes and promoting biodiversity and life support systems". In 2003, the concept of sustainable development was legalised in the National Sustainable Development Strategy adopted by the Government of Lithuania. The European Union has paid and continues to pay much attention to the sustainable development of tourism.

In order to increase the competitiveness of the tourism sector, it is important to ensure that tourist attractions and services are adapted and offered to all tourists, taking into account their physical ability, disability or age, i.e. people with special needs, families with young children, the elderly, etc. y. to promote the development of tourism access or to increase tourism accessibility (adaptation to people with disabilities) and availability. In 1980, the United Nations World Tourism Organisation linked tourism and accessibility for the first time in the Manila Declaration. According to the European Commission, more than a quarter of the continent's population is made up of people with disabilities, senior citizens and other social groups that require special tourism infrastructure. European Parliament 2021 On 25 March, point 72 of the EU Sustainable Tourism Strategy draws attention to the importance of access to travel and tourism services for all, including children, the elderly and people with disabilities, regardless of their economic situation or potential vulnerability, and so on. Europe has a total of about 50 million people (10% of the population) with some form of disability and it is estimated that one in four European households has a person with some form of disability (Reyes-García, Criad-García, Camúñez-Rruíz and Pérez, 2021). According to the World Bank, around 1 billion people worldwide (15% of the world's population) have some form of disability, while in developing countries the number of people with disabilities is even higher. Between 110 and 190 million

people, or one-fifth of the world's population, have a severe disability (World Bank. Retrieved from: https://www.bancomundial.org/es/topic/disability). Another reason for promoting tourism is the ageing of the world's population. This issue is particularly relevant in developed countries. Sustainable tourism emphasises equal opportunities for all tourists, regardless of their disability, age or other specific needs. Researchers Reyes-García, Criado-García, Camúñez-Rruíz and Pérez, 2021; Stulpinaitė, 2016; Indriūnas, 2015; Baležentis and Žuromskaitė, 2012 and others argued that the application of the tourism sector to the purposes of people with disabilities affects the sustainable development of tourism. Recommended for the promotion of the tourism sector available to all: the development of media on people with special needs available for tourism services; creating a common labelling system for tourism services available to all; encouraging tourism services to use all – access tourism marking on their web portals and other promotional tools for people with special needs; ensuring the official tourism website of the country, official TIC websites and newly developed mobile programs for people with disabilities: the official tourism website and official TIC websites to provide tourists with special needs, etc. Therefore, it is appropriate to install special infrastructure in tourist facilities, to provide appropriate services (specially trained staff, sign language translators, Braille descriptions), to organise activities and exhibitions adapted to people with special needs. This responds to activities such as the official TIC sites in a separate section of tourists with special needs required and the creation of accessible tourist routes (including people with disabilities).

Another very important activity for the development of the tourism sector is the certification of tourism services. Certification is one of the most important and far-reaching measures to ensure the integration of the principles of sustainable development in the tourism sector and the competitiveness of the sector, in order to improve the quality of the tourism sector, the competitiveness of tourist regions and to reduce the environmental impact of the tourism sector. In order to assess and monitor the sustainable development of the tourism sector, researchers have developed different types of methodologies such as the Sustainable Tourism Index (STI), the

World Sustainable Tourism Council Criteria, the System System (SIS), the Importance and Efficiency Analysis (IPA) or the Servqual system (Council Global Sustainable Tourism, 2013; Schianetz and Kavanagh, 2008). Most scholars offered to use certain economic, environmental and socio-cultural indicators. However, the measurement of the level of sustainable development of the tourism sector in tourist regions proved to be one of the main obstacles to sustainability criteria, due to the lack of a "universal and unified methodology" (Fernandez and Rivero, 2009; Tudorache et al., 2017; Zamfir and Cordos, 2015).

In a global studio prepared by the UN PTO, a voluntary eco-label in the tourism business, declaring the application of the principles of sustainable development in the tourism sector, have shown that there are more than 100 eco-labels in Europe, providing tourism business services that meet harmonious development and consumer requirements. Europe has the most "green" tourism certification programme compared to other regions of the world. The eco-labelling of tourism services is a movement towards the application of the principles of sustainable development in the tourism industry. More than 40 eco-labelling systems have been developed for the eco-labelling of tourist accommodation services: eco-labels are provided for hotel services, sometimes with or without restaurants, campsites, youth hotels, rural tourism homesteads, guest houses, temporary tourists without catering, etc. More and more users are choosing certified services and are willing to pay a higher price. There are well-known international certification programmes in the world (e.g. the Northern Swan eco-label in Scandinavian countries, the Latvian Republic's "Green Holidays" eco-label for rural tourism facilities, etc.).

The development of sustainable tourism promotion priorities for the development of regional tourism sector promotion activities includes the development of ecotourism. Ecotourism is understood as a complex, multifaceted phenomenon that has a very low impact on nature and natural resources, involves local communities, promotes local cultures and traditions, provides financial benefits to local people, and has an educational and wellness function (Drumm et al., 2002). Ecotourism can be defined as the type of tourism where the main purpose of the trip is to observe the cultural manifestations of

nature and local, without negative impact on the environment and the ability of local people to carry out socio-economic activities. This type of tourism includes rural tourism services, slow, educational and active tourism (bicycle, water, pedestrian, etc.) and travelling in the natural environment, where their physical and mental strength is used or sought to recover. The main principles of ecotourism, which should be observed when planning and carrying out ecotourism, are: 1) preserving the biodiversity of natural recreational areas; 2) improving the economic stability of regions where ecotourism is developed; 3) raising the ecological culture of all participants in ecotourism activities; 4) preserving the ethnographic status of recreational areas (Astromskienė et al., 2007). Hall and others, 2013; Goosling et al., 2012; Jenkins et al., 2011; Hoffmann, 2011 noted the need not only to develop the growth of organic tourism, but also to reorient the tourism sector (shorter distances, reuse, recycling, greater orientation towards local tourism and greater use of short supply chains). Ecological tourism is most relevant to solving environmental tourism problems (Lu et al, 2009). A 2018 study revealed that the development of the tourism sector contributes 8% to global carbon dioxide emissions (Lenznet et al., 2018). Therefore, the sustainable development of the tourism sector is very important in the modern world. As a result, several guidelines for the development of a sustainable tourism sector have been developed by providing basic environmental indicators of the tourism sector, including mitigation of climate change, reduction of pollution, use of renewable resources, waste management, etc. (UNEP, 2004; UN PTO, 2013, 2014, 2017). The essential condition for the demand for ecological tourism products is the attractive development of public tourism sector infrastructure (tourist routes, tracks, paths) and service complex – development of infrastructure for active tourism services, development of water tourism routes and public and private water tourism infrastructure; development of cycling tourism infrastructure to create regional routes; development of a common national route connecting different regions of the country and enabling tourists to plan longer trips, etc.

Researchers Dayoub, B., Yang, P., Dayoub, A., Omran, S., and Li, H. (2019) argue that the development of cultural routes becomes a tool to promote the development of the tourism sector in a tourist

region and contributes to the implementation of priorities to promote sustainable tourism development. Global trends in the development of the tourism sector show that thematic tourism routes and cultural routes, which connect several regions or countries, are usually more attractive and popular.

Another priority for the sustainable development of the tourism sector is the promotion of inbound tourism. According to researchers Theobald, 2005; Grecevičius, Armaitienė, Labanauskaitė, 2002; Copper, Fletcher, Gilbert and Wanhill, 1993, inbound tourism is the arrival of tourists from other areas to a region. Local tourism enterprises provide their services (accommodation, catering, sightseeing, currency exchange, etc.). The expenditure of inbound tourists has a positive impact on the domestic economy of the country, as it increases the volume of trade and income, creates new jobs, helps to collect more taxes and stimulates tourism-related economic activities. The development of inbound tourism contributes significantly to the promotion of qualitative regional development and helps to justify tourism development decisions more objectively. According to Labanauskaitė (2011), inbound tourism not only attracts investments, creates income and jobs, improves the trade balance, promotes qualitative regional development, but can also have a negative impact on the economy. The positive impact of inbound tourism on the country's economy is obvious, while the negative impact may or may not occur, therefore, each country participating in international tourism exchange seeks to promote inbound tourism, seeking to strengthen its conditioned positive impact on the economy (Labanauskaitė, 2008). According to Žabaliūnas and Skarbalius (2004), a well-planned, dynamic and professionally implemented national and inbound tourism policy ultimately creates beneficial economic results for the country. In order to reduce the negative impact of tourism on the environment, there is an increasing shift towards the implementation of the concept of sustainable development of the tourism sector. The development of inbound tourism can be assessed by one indicator – foreign tourist visits (the target indicator should be up to 30 percent of the total tourist flow).

During the analysis of scientific literature sources (Espinera, Orchistonb, & Highamc, 2017; Orchiston, Prayag & Brown, 2016;

Stužinskas, 2015; Orchiston, 2013; Ritchie, Bentley, Koruth & Wang, 2011; Daunora, 2010, etc.), the identified factors of sustainable tourism sector development can be attributed to the indicators of sustainable tourism sector development, respectively. Resilience indicates the ability of the tourism sector to respond flexibly to emerging external changes and remain resilient and viable, therefore, the certification of tourism services and the growth of tourism service providers with international certificates can be attributed to it, which actually helps the sector to remain more resilient (Espinera, Orchistonb, & Highamc, 2017). The term sustainability is used to refer to the long-term perspective of the impact of decisions and/or the effectiveness of the relevant measures applied (Stužinskas, 2015).Therefore, this indicator can include such factors of sustainable development of the tourism sector as accessibility of tourism services, foreign tourist visits, development of a unified national route, information for tourists with special needs, and the creation of tourist routes accessible to all. The term sustainability is used to indicate the characteristics of the research object, such as orientation towards environmental friendliness, environmental protection, moderate consumption, responsible consumption (Stužinskas, 2015; Daunora, 2010), therefore this indicator can include such factors as development of ecological tourism, development of cultural routes, water tourism routes, water tourism infrastructure, bicycle tourism infrastructure.

During the analysis of scientific literature sources (Espinera, Orchistonb, & Highamc, 2017; Orchiston, Prayag & Brown, 2016; Stužinskas, 2015; Orchiston, 2013; Ritchie, Bentley, Koruth & Wang, 2011; Daunora, 2010, etc.), the identified factors of sustainable tourism sector development can be attributed to the indicators of sustainable tourism sector development, respectively. Resilience indicates the ability of the tourism sector to respond flexibly to emerging external changes and remain resilient and viable, therefore, the certification of tourism services and the growth of tourism service providers with international certificates can be attributed to it, which actually helps the sector to remain more resilient (Espinera, Orchistonb, & Highamc, 2017). The term sustainability is used to refer to the long-term perspective of the impact of decisions and/or the effectiveness of the relevant measures

applied (Stužinskas, 2015).Therefore, this indicator can include such factors of sustainable development of the tourism sector as accessibility of tourism services, foreign tourist visits, development of a unified national route, information for tourists with special needs, and the creation of tourist routes accessible to all. The term sustainability is used to indicate the characteristics of the research object, such as orientation towards environmental friendliness, environmental protection, moderate consumption, responsible consumption (Stužinskas, 2015; Daunora, 2010), therefore this indicator can include such factors as development of ecological tourism, development of cultural routes, water tourism routes, water tourism infrastructure, bicycle tourism infrastructure.

In summary, after analysing the scientific literature, the main factors for sustainable development of the tourism sector in tourist regions were identified (based on Reyes-García, Criado-García, Camúñez-Ruíz, and Pérez, 2021; Dayoub, B., Yang, P., Dayoub, A., Omran, S., & Li, H., 2019; Gkoumas, 2019; Lenzenet et al., 2018; Tudorache et al, 2017; Indriūnas, 2015; Stulpinaitė, 2016; Zamfir & Cordos, 2015; Baležentis, A. and Žuromskaitė, B., 2012): accessibility of tourism (adaptation for people with disabilities) and accessibility; foreign tourist visits (target indicator up to 30% of the total tourist flow); certification of tourism services ("Green Key", "Blue Flag", etc..); increase of tourism service providers with international certificates; development of ecological tourism; development of water tourism routes in the region; development of public and private water tourism infrastructure; development of cycling tourism infrastructure by creating regional routes; development of a common national route connecting different regions of Lithuania and enabling tourists to plan longer trips; development of cultural routes; provision of information necessary for tourists with special needs in a separate section on official TIC websites; creation of tourist routes accessible to everyone (including people with disabilities) (created by TICs in their area).

Conclusion

1. Sustainable development of the tourism sector is associated with the conservation of ecosystems and biodiversity, the promotion of human well-being and intercultural

communication, public participation in tourism-related decision-making and the opportunity for all stakeholders to achieve social and cultural tourism outcomes; sustainability can be a policy or development objective for most tourism activities or environments, regardless of their scale.

2. After summarizing the insights of foreign and Lithuanian scientists, such as the main factors for sustainable development of the tourism sector in tourist regions were identified: accessibility of tourism (adaptation for people with disabilities) and accessibility; foreign tourist visits (target indicator up to 30% of the total tourist flow); certification of tourism services ("Green Key", "Blue Flag", etc..); increase of tourism service providers with international certificates; development of ecological tourism; development of water tourism routes in the region; development of public and private water tourism infrastructure; development of cycling tourism infrastructure by creating regional routes; development of a common national route connecting different regions of Lithuania and enabling tourists to plan longer trips; development of cultural routes; provision of information necessary for tourists with special needs in a separate section on official TIC websites; creation of tourist routes accessible to everyone (including people with disabilities) (created by TICs in their area).

References:

1. *Baležentis, A., and Žuromskaitė B. (2012). Tourism management. Vilnius: UAB „Vitae Litera", ISBN 978-9955-19-467-5.*
2. *Cooper C., Fletcher J., Gilbert D., Shepherd R., and Wanhill S. (1998). Tourism principles and practice (2ed.) Harlow: Pearson Education Limited, p. 290.*
3. *Dayoub, B., Yang, P., Dayoub, A., Omran, S., and Li, H, (2019). The Role of Cultural Routes in Sustainable Tourism Development: A Case Study of Syria's. International Journal of Sustainable Development and Planning, Vol. 15, No. 6, pp. 865-874.*
4. *Daunora, Z. J. (2010). Sustainability and coherence factors in urban development planning. Urban planning and architecture 34(4): 208–215.*
5. *Drumm, A., and Moore, A. (2005). Ecotourism Development – A Manual for Conservation Planners and Managers. Volume I-An*

Introduction to Ecotourism Planning.

6. *Espiner, S., Orchiston, C., ir Higham, J. (2017). Resilience and sustainability: A complementary relationship? Towards a practical conceptual model for the sustainability–resilience nexus in tourism. Journal of Sustainable Tourism, 25(10), 1385–1400. ttps://doi.org/10.1080/09669582.2017.1281929.*
7. *Gössling, S., Scott, D., Hall, C. Michael, Ceron J. – P., and Dubois G. 2012). „Consumer behaviour and demand response of tourists to climate change". Annals of Tourism Research, 39(1), 36–58.*
8. *Hall, J. N. (2013). Pragmatism, evidence, and mixed methods evaluation. New Directions for Evaluation, 138, 15-26.*
9. *Hoffmann, U. (2011). Some Reflections on Climate Change, Green Growth Illusions and Development Space. UNCTAD Discussion Paper 205. UNCTAD, Geneva,*
10. *Indriūnas, G. Tourism planning (nota bene). Vilnius: Vilnius Higher Education Institution, 2015.*
11. *Jenkins, J., Nordhaus T., and Shellenberger M. (2011). Energy Emergence: Rebound and Backfire as Emergent Phenomena. Breakthrough Institute, Oakland.*
12. *Labanauskaitė, D. (2011). Assessment of the impact of inbound tourism on regional economic growth. ISSN 1822-6760. Management theory and studies for rural business and infrastructure development. No. 1 (25), Klaipėda.*
13. *Orchiston, C. (2013). Tourism business preparedness, resilience and disaster planning in a region of high seismic risk: The case of the Southern Alps, New Zealand. Current Issues in Tourism, 16(5), 477–494.*
14. *Reyes-García, M. E., Criado-García, F., Camúñez-Ruíz, J. A. and Casado-Pérez, M. (2021). Accessibility to Cultural Tourism: The Case of the Major Museums in the City of Seville. Sustainability 2021, 13, 3432. https://doi.org/10.3390/su13063432 https://www.mdpi.com/journal/sustainability.*
15. *Ritchie, B., Bentley, G., Koruth, T., and Wang, J. (2011). Proactive crisis planning: Lessons from the accommodation industry. Scandinavian Journal of Hospitality and Tourism, 11(3), 367–386.*
16. *Stulpinaitė, J. (2016). Fundamentals of Tourism: Concept, System, Structure. Šiauliai: Šiauliai State College, 197 p., ISBN 978-609-415-062-3.*
17. *Theobald, W. F. (2005). Global tourism. Routledge.*
18. *Tudorache, D., Simon, T., Frenț, C, and Musteaţă-Pavel, M. (2017). Difficulties and challenges in applying the European tourism indicators system (ETIS) for sustainable tourist destinations: the case of Braşov*

county in the Romanian Carpathians. Sustainability, 9 (10) (2017), p. 1879.

19. *Zamfir, A., and Corbos, R. A. (2015). Towards sustainable tourism development in urban areas: case study on Bucharest as a tourist destination Sustainability (7), 12709-12722.*

doc. Ing. **Michaela Staníčková**
ORCID: https://orcid.org/0000-0001-6210-2377
Ph.D.
VSB-Technical University of Ostrava
(Ostrava, Czech Republic)

INTERGENERATIONAL DYNAMICS AND DIGITAL TRANSFORMATION IN EU-FUNDED PROJECT MANAGEMENT: A CZECH PERSPECTIVE

https://doi.org/10.5281/zenodo.15710041

Abstract
This chapter explores how intergenerational differences influence digital transformation and team dynamics in EU-funded project management within the Czech public sector. Based on empirical insights, the research examines how generational cohorts (X, Y, and Z) adopt and integrate digital technologies into project environments. The chapter presents a hybrid governance model enhancing resilience, effectiveness, and collaboration across generations through targeted use of digital tools and soft skills. By aligning generational competencies and expectations with the structural and procedural demands of EU-funded project schemes, public organisations can improve project performance and long-term sustainability. The analysis provides a context-sensitive framework applicable to post-socialist public administrations in Central Europe facing similar demographic and technological challenges.

Keywords: *digital transformation, project management, intergenerational teams, EU funds, resilience, Czech Republic*.

1. Introduction

European Union (EU)-funded projects represent a significant portion of Czech public administration activities, requiring efficient management practices that integrate technological innovation and adaptive team structures. The increasing complexity of project ecosystems, driven by digitalisation and demographic shifts, calls for a reassessment of how multigenerational teams operate in the face of change (Guinan et al., 2019).

As the Czech Republic continues to modernise its governance structures in response to EU cohesion policy, digitalisation emerges

as a cornerstone of administrative transformation. Yet, the success of digital initiatives depends not solely on technological infrastructure but on the human and organisational capacity to adapt. In this context, public project teams increasingly consist of employees from different generational cohorts, each bringing distinct competencies, values, and work habits. Understanding how generational characteristics interact with the imperatives of digital project management is essential to designing inclusive and resilient institutions. This chapter addresses the need for an integrated approach that bridges generational divides and harnesses digital tools for institutional innovation.

1.1 Theoretical Framework and Conceptual Foundations

The integration of generational analysis into digital project governance necessitates a clear delineation of the theoretical constructs that underpin intergenerational collaboration, institutional adaptability, and technology adoption. Four central constructs inform the conceptual architecture of this chapter: (1) digital transformation in the public sector, (2) hybrid governance models in EU-funded project schemes, (3) generational work values and behavioural traits, (4) institutional resilience under demographic and technological pressures.

Digital transformation in the context of public project management entails more than the deployment of ICT tools; it refers to a fundamental reconfiguration of workflows, decision-making, and stakeholder engagement driven by digital logic (Kraus et al., 2022; Van Veldhoven and Vanthienen, 2022). This transformation is highly sensitive to the digital readiness of team members and their willingness to adapt, which is often shaped by generational experience.

Hybrid governance refers to the coexistence of hierarchical, procedural structures with flexible, network-based coordination mechanisms (Marnewick and Marnewick, 2021, 2022). In EU-funded project contexts, hybrid governance allows institutions to maintain regulatory compliance while integrating agile tools such as collaborative platforms, digital dashboards, and real-time communication channels. Such systems demand cross-generational literacy and functional trust.

To understand intergenerational dynamics in this space, we draw on generational cohort theory (Zemke et al., 2013), which posits that shared formative experiences – such as war, economic transformation, or technological rupture – shape enduring values and attitudes toward work, authority, and change. A typology relevant to the project environment is shown in Table 5.3. This typology captures the dominant cohorts present in the workforce and their corresponding formative anchors.

Table 5.3

Typology relevant to the project environment

Generation	Birth Years	Core Traits	Project Work Tendencies
Generation X	1965–1980	Pragmatic, adaptable, self-reliant	Balance tradition with innovation; hybrid tools
Millennials (Y)	1981–1996	Tech-savvy, purpose-driven, collaborative	Prefer agile, participatory models
Generation Z	1997–2015	Native digital, high flexibility, autonomous	Value speed, purpose, digital-first tools

Source: own elaboration (2025) based on Afridi et al. (2023), Kraus et al. (2022), Marnewick and Marnewick (2021, 2022), Van Veldhoven and Vanthienen (2022), Szalavetz (2019), Abrams and Von Frank (2013), Zemke et al. (2013)

1.2 Theoretical Framework: Generational Traits and Technology Acceptance

Understanding how generational traits influence the adoption and integration of digital tools in project management requires an anchoring in established theoretical perspectives. This section outlines the conceptual framework employed in this study, drawing from models in organizational behaviour, digital governance, and technology acceptance.

The Technology Acceptance Model (TAM) offers a foundational lens to interpret differences in digital tool uptake. It posits that user acceptance is determined primarily by perceived usefulness and perceived ease of use. In the context of intergenerational teams, these dimensions vary significantly. Younger cohorts (Y, Z), socialized in digital environments, often find modern project tools intuitive and indispensable, while older cohorts (X) may view them as supplementary or burdensome unless clear institutional benefits and support structures are in place. Extensions of the TAM model, such

as TAM2 and UTAUT, incorporate additional factors like social influence and facilitating conditions, which are particularly relevant in hierarchical public institutions.

From a broader organizational perspective, the Institutional Logics Perspective highlights how professional norms, cultural expectations, and generational identities co-shape behaviour. Senior team members often prioritize compliance, stability, and procedural integrity, aligned with a bureaucratic logic. In contrast, younger staff may operate under a logic of agility, transparency, and innovation, favouring iterative workflows and open communication platforms.

These insights are further complemented by the Socio-Technical Systems Theory, which emphasizes the interdependence of people, processes, and technologies. Effective digital transformation in EU-funded projects depends not solely on tool deployment, but on aligning these tools with the capabilities, motivations, and communication patterns of multigenerational users.

Thus, this chapter integrates a multidimensional theoretical framework to analyses how project performance in Czech public administration is shaped by the interplay between generational dynamics and digital transition imperatives.

1.3 Generational Shifts in Czech Public Administration

The Czech public sector has undergone substantial demographic and institutional transformation since the country's accession to the European Union. These changes have significantly affected the composition, values, and operational paradigms of project teams managing EU-funded interventions.

Statistical data from the Czech Statistical Office and civil service registries indicate a gradual generational shift. While Baby Boomers and Generation X still dominate in leadership, administration, and grant compliance roles, Generations Y and Z increasingly enter public sector employment, particularly in operational, analytical, and IT-support functions. This shift creates both opportunities and tensions in project implementation, especially under the growing pressure for digitalization and adaptive governance.

The operational frameworks of EU-funded projects – such as those under OP TAK, OPZ+, or IROP – require a high degree of procedural compliance, but also demand increasing agility, digital

fluency, and cross-functional coordination. These dual imperatives reveal cultural gaps between generations, often manifesting in divergent approaches to planning, communication, and risk-taking.

At the institutional level, the role of managing authorities and intermediate bodies has been instrumental in disseminating digital innovation. For instance, initiatives promoting eMonitoring, centralized document repositories (IS KP21+), and online evaluation portals have accelerated the need for digital competencies among all staff categories. However, implementation success often hinges on informal factors: peer learning, reverse mentoring, and the ability of team leaders to integrate different work styles.

Furthermore, the Czech Republic's transition from a hierarchical, compliance-oriented administration to more hybrid governance models remains incomplete. Generational dynamics thus act as a critical variable: in some cases, facilitating experimentation and cross-sectoral innovation; in others reinforcing resistance and fragmentation. As such, understanding intergenerational interaction is not only relevant for team-level dynamics, but also for institutional learning and systemic adaptability within the EU project ecosystem.

2. Materials and Methods

The research design employed a mixed-methods approach to capture both quantitative patterns of digital tool usage and qualitative nuances of intergenerational collaboration in EU-funded project settings.

2.1 Research Sample and Data Collection

The dataset comprises 157 completed online questionnaires and 30 in-depth qualitative interviews with project managers, coordinators, and team members engaged in the implementation of EU-funded projects in the Czech Republic. Respondents were drawn from all eight Czech NUTS 2 regions, with proportional representation across institutional types – regional authorities, universities, managing authorities, NGOs, and research institutions. The sampling strategy was purposive, aiming to include voices from different age groups, project roles, and digital competence levels. Data collection occurred in two phases between January and April 2025. In Phase I, a structured questionnaire was disseminated

through professional networks (e.g., regional project platforms, the Association of Grant Consultants, university networks). The questionnaire included demographic information (age cohort, sector, role), self-assessed digital competence, preferred tools, and perceived barriers/enablers of digital collaboration. In Phase II, semi-structured interviews were conducted with a subset of 30 respondents. Selection criteria included generational representation, sectoral diversity, and willingness to elaborate on intergenerational team experiences. Interviews were anonymised, recorded with consent, and transcribed verbatim for analysis.

2.2 Analytical Framework and Tools

Quantitative data from the survey were processed using IBM SPSS Statistics. A hierarchical cluster analysis (Ward's method) was applied to identify patterns of digital tool adoption by generation, project role, and institutional type. Variables included frequency of use, self-reported digital confidence, and perceived usefulness of tools such as MS Teams, Asana, Trello, SharePoint, and automated dashboards.

Qualitative interview data were analysed using thematic coding in NVivo. Coding categories included:

- *Attitudes toward technology* (e.g., trust, control, efficiency),
- *Generational identity markers* (e.g., authority perception, feedback style),
- *Collaboration and conflict in project teams*,
- *Leadership expectations and communication culture*.

The coding scheme was iteratively refined using a combination of deductive (based on theoretical framework) and inductive (emerging from data) techniques. Triangulation was ensured by comparing coded interview segments with corresponding survey results, enhancing internal validity.

2.3 Ethical Considerations and Limitations

All participants provided informed consent, and anonymity was ensured through pseudonymisation. Limitations include potential selection bias, as participants with stronger digital orientation may have been more likely to participate. Moreover, while the regional and institutional coverage was broad, case-based generalisation is

prioritised over statistical generalisability. Nevertheless, the diversity of perspectives enabled the development of context-sensitive insights relevant to broader Central European public administration settings.

3. Results and Discussion

The survey and interview data revealed clear distinctions among generational cohorts in how they perceive project work, define professional contribution, and navigate authority structures.

Generation X**,** who often occupy leadership or compliance roles, place high value on institutional memory, standardized processes, and stability. They tend to prefer structured workflows, hierarchical communication, and clear responsibility chains. Their attitudes are shaped by long-term employment trajectories and loyalty to organizational norms.

In contrast, Millennials (Gen Y) and Generation Z exhibit strong preferences for open communication, horizontal collaboration, and continuous learning. They are driven by purpose and autonomy rather than hierarchy or tradition. In project teams, they frequently introduce agile tools, push for quicker iterations, and expect feedback as a regular part of workflow – not as a periodic evaluation mechanism.

A key finding is that generational differences often serve as both a challenge and an asset**.** In several case studies, older team members ensured formal correctness and budgetary discipline, while younger members contributed to digital streamlining and stakeholder engagement. Teams that embraced this complementarity – through dialogue, reciprocal respect, and aligned task structuring – demonstrated higher resilience and adaptability.

However, in teams where generational misunderstandings persisted (e.g., older staff perceiving digital initiatives as "experiments", or younger staff viewing procedural rigor as "obstruction"), frustration and disengagement were common. One regional project manager commented: *"Our meetings are efficient only when we agree to let the younger team lead the tools, but the older staff keep control of the deadlines and reporting."*

3.1 Technology Adoption and Communication Tools

The analysis confirmed a statistically significant correlation between generational cohort and preference for specific project tools

($p < 0.01$). Tools like MS Teams, Slack, Trello, Asana, and Notion were heavily used by respondents under 40, who appreciated their transparency, integrability, and flexibility. These tools were often embedded in day-to-day workflows without formal institutional mandate – what one respondent called "shadow digital infrastructure".

Older team members, while generally aware of these tools, often limited their usage to institutional systems like SharePoint, eAccounting, or email-based tracking, citing reasons such as unclear data security policies, institutional inertia, or discomfort with real-time collaboration tools.

Barriers to technology adoption were clustered into four categories:

- *Psychological*: digital fatigue, fear of being replaced, lack of confidence.
- *Organizational*: absence of clear guidelines, restrictive IT policies, tool fragmentation.
- *Cultural*: perceived loss of authority or role clarity in transparent systems.
- *Operational*: lack of training, low exposure, and inconsistent peer support.

Conversely, successful teams implemented reverse mentoring schemes (e.g., junior staff leading short tool training sessions), used user-centred tool selection processes, and encouraged micro-innovation – the incremental adoption of tools based on pilot uses. These teams showed higher overall satisfaction and lower intergenerational conflict indicators.

3.2 Team Dynamics and Resilience

Based on thematic coding and cross-referenced with cluster analysis, project teams that scored highest on resilience metrics (adaptability, continuity, morale under pressure) shared common features:

- *Psychological safety*: individuals felt comfortable expressing concerns, suggesting changes, and admitting mistakes.
- *Balanced leadership*: managers employed facilitative rather than directive styles, adjusted to generational expectations.

- *Generational transparency*: mutual acknowledgment of different value systems, leading to more effective role distribution.

The most effective teams practiced dynamic delegation, with older staff overseeing compliance and reporting, and younger staff handling innovation and external communication. One university-based project was cited as a model: roles were assigned based on digital confidence and process strengths rather than age or formal title.

On the other hand**,** teams lacking generational empathy or clarity often encountered passive resistance, duplication of efforts, and breakdowns in communication loops. Particularly in cases where senior staff monopolized decision-making without acknowledging junior input, younger members withdrew to the minimum engagement required.

These findings align with recent literature on adaptive capacity in hybrid teams (Carmeli et al., 2021), reinforcing the idea that multigenerational collaboration is not inherently problematic – but demands conscious managerial strategies.

3.3 Hybrid Governance Model

Building on the empirical insights, the chapter proposes a Hybrid Governance Model for Intergenerational Project Teams. The model integrates both generational logic and digital functionality and has been piloted in three regional EU-funded projects (education, regional development, and smart specialization).

Key elements of the model include:

1. *Role assignment* by competence and tech fluency, rather than hierarchy or seniority.
2. *Periodic intergenerational workshops* focused on soft skills, communication, and digital co-creation.
3. *Shared digital norms* – teams agree on what tools to use, how to document, and when to escalate issues.
4. *Adaptive leadership styles* – team leaders adjust communication tone, reporting demands, and delegation style based on team composition.

The model emphasizes co-leadership (e.g., pairing a senior compliance officer with a junior digital strategist), task modularity

(breaking down deliverables into units that different generations can handle effectively), and dual performance indicators – combining technical project Key-Performance-Indicators with metrics on collaboration, team cohesion, and innovation frequency.

Preliminary evaluation of the pilot applications showed improved internal communication (fewer delays and clearer task ownership), higher satisfaction rates across age groups, lower staff turnover, particularly among younger professionals.

4. Conclusions

Intergenerational diversity, when managed strategically, becomes a driver of resilience and innovation in EU-funded project management. Embracing digital tools, soft skill development, and inclusive leadership can enhance project quality and sustainability in the Czech context. The findings reinforce the importance of designing age-inclusive digital strategies, redefining leadership development programmes, and adapting EU project methodologies to reflect the lived realities of multigenerational teams. Further research should explore scalability in other Central and Eastern European contexts.

Synthesis of Key Findings

This chapter demonstrated that intergenerational dynamics critically shape the success of digital transformation in EU-funded project management within the Czech public sector. Based on a robust empirical dataset across NUTS 2 regions, the research confirmed that each generational cohort brings distinct values, competencies, and expectations to project teams—and that these differences significantly affect communication, task execution, and adoption of digital tools.

When strategically managed, generational diversity proves to be a structural advantage rather than a liability. Teams that acknowledged and aligned differing working styles and digital literacies achieved higher project resilience, faster decision cycles, and stronger institutional learning. Conversely, teams that ignored or suppressed generational differences frequently experienced inefficiencies, conflict, and staff disengagement.

Digital tools were not merely instruments, but mediators of culture and authority. Their integration into workflows was highly dependent on generational trust, institutional clarity, and perceived usefulness. Resistance to digitalisation was rarely about the technology itself, but rather about the fear of losing control, meaning, or identity in evolving project environments.

The proposed Hybrid Governance Model provides a practical framework for leveraging these dynamics. It shows that shared norms, functional leadership, and role allocation based on skills – rather than hierarchy – can harmonise project teams and enhance performance.

Practical Recommendations for Institutions and Policymakers

To institutionalise these insights, the following recommendations are proposed for Czech managing authorities, public organisations, and project leaders operating within EU-funded schemes: Generational diversity should be built into project team design and HR guidelines in programmes like OP TAK, OPZ+, and Horizon Europe. Organisations should support cross-generational learning (e.g. reverse mentoring, mixed-age training), modernise leadership with age-aware skills, and ensure inclusive use of digital tools with flexible protocols and support. Regular feedback (retrospectives, intergenerational groups) should guide updates to internal practices. Pilot projects can test hybrid governance and scale up based on results. These steps align not only with the EU's cohesion policy principles of effectiveness and inclusiveness but also support long-term sustainability by building generational bridges within and across institutions.

Directions for Future Research

While this chapter focused on the Czech context, its findings resonate with broader patterns in Central and Eastern Europe, particularly in countries facing similar post-socialist administrative legacies and delayed digital transitions. Future research should include comparative case studies across Visegrad or Baltic countries to examine the transferability of hybrid governance models. Longitudinal studies can track team performance before and after introducing intergenerational measures, while quantitative

assessments should evaluate the impact of digital maturity and generational diversity on project outcomes. Network analysis can reveal how informal digital practices spread within institutions, and policy evaluation studies should assess how programming documents, such as OP guidelines, reflect team structures and digital readiness. Further inquiry should also investigate how generational dynamics interact with gender, professional background, and organisational culture, to uncover additional layers of complexity in digital transformation processes.

In conclusion, the study affirms that the intersection of generational identity and digital transformation is a strategic frontier for EU project management. Unlocking its potential requires more than tools or training – it calls for a shift in how we design, govern, and lead multigenerational teams. Czech public institutions have an opportunity not only to adapt – but to lead – in this domain.

Acknowledgements

The chapter was supported by the Student Grant Competition of the Faculty of Economics, VSB-Technical University of Ostrava, project registration number: SP2025/023: Exploring the Impact of Generational Changes on the Management of Organisations. All support is greatly appreciated.

References:

1. *Abrams, J. and Von Frank, V. (2013). The Multigenerational Workplace: Communicate, Collaborate, and Create Community. Thousand Oaks, CA: Corwin Press.*
2. *Afridi, K., Turi, J.A., Zaufishan, B. and Rosak-Szyrocka, J. (2023). Impact of digital communications on project efficiency through ease of use and top management support. Heliyon, 9(7), e17941.*
3. *Carmeli, A., Levi, A. and Peccei, R. (2021). Resilience and creative problem-solving capacities in project teams: A relational view. International Journal of Project Management, 39(5), pp.546–556.*
4. *Guinan, P.J., Parise, S. and Langowitz, N. (2019). Creating an innovative digital project team: Levers to enable digital transformation. Business Horizons, 62(6), pp.717–727.*
5. *Kraus, S., Durst, S., Ferreira, J.J., Veiga, P., Kailer, N. and Weinmann, A. (2022). Digital transformation in business and management research: An overview of the current status quo. International Journal*

of Information Management, 63(C), e102466.
6. *Marnewick, C. and Marnewick, A. (2021). Digital intelligence: A must-have for project managers. Project Leadership and Society, 2, e100026.*
7. *Marnewick, C. and Marnewick, A. (2022). Digitalization of project management: Opportunities in research and practice. Project Leadership and Society, 3(561), e100061.*
8. *Szalavetz, A. (2019). Digitalisation, automation and upgrading in global value chains. Post-Communist Economies, 31(5), pp.646–670.*
9. *Van Veldhoven, Z. and Vanthienen, J. (2022). Digital transformation as an interaction-driven perspective between business, society, and technology. Electronic Markets, 32(2), pp.629–644.*
10. *Zemke, R., Raines, C. and Filipczak, B. (2013). Generations at Work: Managing the Clash of Boomers, Gen Xers, and Gen Yers in the Workplace. New York: AMACOM.*

Olena Stanislavyk
ORCID: https://orcid.org/0000-0003-2481-9961
Doctor of Economics, Professor,
Department of Management and Marketing
State University of Intelligent Technologies and Telecommunications
Oleksandr Kovalenko
ORCID: https://orcid.org/0000-0001-9702-2772
Doctor of Economics, Professor,
Department of International Management and Innovations,
Odesa Polytechnic National University (Odesa, Ukraine)

THE ROLE OF INTERNATIONAL ECONOMIC ALLIANCES IN OVERCOMING GLOBAL CRISES

https://doi.org/10.5281/zenodo.15710063

Abstract
International economic alliances have become an integral element of the modern global economy, contributing to the development of international cooperation, increasing financial and trade stability, as well as creating new opportunities for the growth of national economies. They are a form of integration between states, which allows participating countries to jointly coordinate their economic policies, expand markets and reduce the risks associated with the instability of the global economic system. The study examines the historical aspects of the emergence of international economic alliances and their transformation in response to changing economic and political conditions. Particular attention is paid to the mechanisms of their functioning, as well as their impact on the regulation of international trade, investment, stabilization of exchange rates and prevention of crisis phenomena. The paper also analyzes the key challenges facing international economic associations in the 21st century. In particular, the role of digital technologies in ensuring the effectiveness of global economic governance, as well as the importance of environmental sustainability in the formation of new cooperation strategies, is considered. The prospects for the further development of such economic blocs as the European Union, the IMF, the World Bank, OPEC+ and regional associations, their ability to adapt in conditions of geopolitical

and economic instability are studied. Considerable attention is paid to the issues of energy and food security, which are becoming strategic priorities for international cooperation. The mechanisms of interaction in overcoming the consequences of global crises are studied, including financial, energy and environmental challenges, as well as the role of alliances in creating new financial and investment instruments to support economic growth.
The materials of the work have practical significance for governments, international organizations, the business community and think tanks dealing with issues of global economic governance. The paper allows for a deeper understanding of the role of international economic alliances in the modern world and outlines possible directions for their further development.

Keywords: *international economic alliances, global economy, financial stability, global crises, trade integration, regional economic unions, digitalization, energy security, environmental sustainability, international cooperation, financial technologies.*

This research is crucial as it explores how economic partnerships among nations contribute to stability, resilience, and recovery in times of global turmoil. In an era marked by financial downturns, pandemics, geopolitical conflicts, and climate change, international economic alliances serve as key mechanisms for coordinating policies, ensuring trade continuity, and providing financial assistance to struggling economies. Understanding these alliances' impact can inform policymakers on how to strengthen international collaboration, making economies more adaptable to future crises.

The aim of this work is to study the role of international economic alliances in overcoming global crises.

The problems of the functioning of international economic alliances in the context of global crises are considered in many works (Chunikhina et al., 2024; Funke & Zhong, 2022; Hetmanets et al., 2023; Kalchenko, (2006; Kasych et al., 2017; Kozak et al., 2020; Kozak, 2017; Kozak et al., 2018; Korzh & Fomichenko, 2023; Kutsyk et al., 2015; Makedon, 2010; Pavlov, 2022; Voronova et al., 2023). These papers show that International economic alliances have become a big part of how the world economy works today. Countries team up, try to cooperate, keep financial systems stable, and, ideally,

help each other grow. In theory, these alliances should make things easier – more trade, fewer risks, better access to markets. But, of course, reality is always more complicated.

The idea behind these alliances is simple: work together to keep economies running smoothly. Countries agree on trade rules, try to make investments less of a headache, and sometimes even tweak customs regulations to make things flow better. Some alliances also offer financial help to struggling economies, though how effective that really is can be debated. In general, when policies align, things should be more predictable, at least on paper.

These alliances have been around for quite a while, shifting and adapting as the world changes (Table 5.4). What started as basic trade deals turned into full-blown regional economic groups.

Over time, technology, politics, and market trends have all played a role in reshaping how these alliances function. Some have thrived, others not so much. It's an ongoing process, and there's always something new influencing the direction they take.

The first major economic alliances started forming around the mid-20th century when countries were scrambling to rebuild after World War II. With economies in rough shape and trade systems all over the place, nations needed some kind of structure to regulate financial flows and make international trade more predictable. That's how these partnerships started – initially as a necessity, but over time, they turned into a key part of economic diplomacy. Today, they help countries navigate financial crises, keep their economies stable, and, of course, try to stay competitive.

Not all international alliances work the same way. They vary depending on how deeply the countries want to integrate, what their goals are, and which sectors they focus on. Some are just about trade, while others go further, involving monetary policies, financial cooperation, or even energy markets. The different levels of economic integration, ranging from simple free trade zones to full-on political unions, show how these alliances can evolve over time (Figure 5.5). Whether regional or global, these partnerships have shaped the way economies interact, opening up new markets and creating opportunities for cooperation across different industries.

One of the most prevalent forms of international economic alliances is trade blocs, which are established to facilitate the

movement of goods, services, and capital among member countries (Table 5.5).

Table 5.4

Key stages in the development of international economic alliances

Period	Key events	Characteristics
1944	Bretton Woods Conference – Establishment of the IMF and the World Bank	Laid the foundation for the modern financial system, introducing mechanisms for currency market regulation.
1957	Treaty of Rome – Establishment of the European Economic Community (EEC)	Marked the beginning of integration processes in Europe and the creation of a common market.
1993	Formation of the European Union (EU) based on the Maastricht Treaty	The EU transitioned to a unified economic, monetary, and political framework.
1995	Establishment of the World Trade Organization (WTO)	Developed global trade regulations and expanded multilateral trade agreements.
2001	China joins the WTO, expanding global economic alliances	China becomes a key player in the global economy, driving the growth of international economic alliances.
2015	Launch of the Eurasian Economic Union (EAEU)	Strengthened regional integration among post-Soviet states and deepened economic ties.
2020	Implementation of the African Continental Free Trade Area (AfCFTA)	The largest free trade zone, encompassing the majority of African countries.

These blocs vary in their level of integration, ranging from free trade zones, which primarily eliminate tariffs, to fully developed economic unions that implement harmonized policies across multiple sectors.

A striking example of a highly integrated economic alliance is the European Union (EU), which stands as the most structured and comprehensive economic bloc in the world. Its member states have not only eliminated customs barriers but also share a unified

economic policy that encompasses labor market regulations, social standards, and environmental norms. Similarly, the USMCA (United States-Mexico-Canada Agreement) enables its members to coordinate economic relations by removing unnecessary trade barriers and fostering seamless commercial interactions.

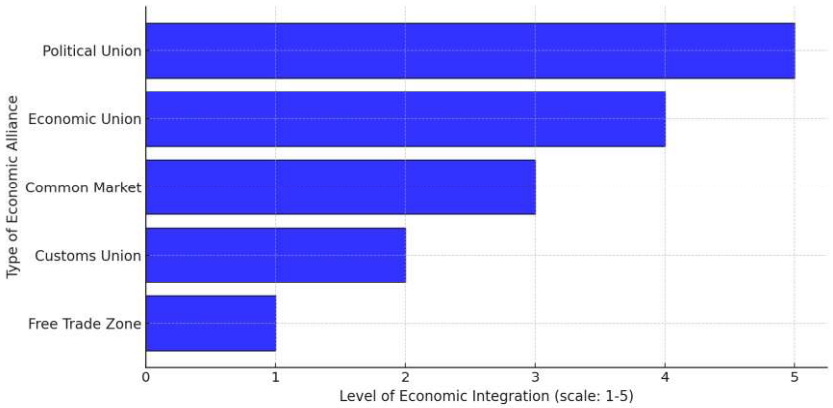


Figure 5.5. Levels of economic integration: from free trade zone to political union

Trade blocs are kind of a big deal when it comes to shaping global supply chains. Take ASEAN, for example – basically a club of Southeast Asian countries like Indonesia, Vietnam, and Thailand. It's not just about trade; it's also about forming partnerships and keeping the region economically tight-knit. By cutting down on trade restrictions and pushing for more cooperation, these groups help economies grow in a way that (hopefully) benefits everyone involved.

Then you've got monetary unions, which are another way countries try to work together. The Eurozone is the most famous one – 20 countries, one currency, the euro. Sounds great in theory. No more exchange rate headaches, easier financial transactions, and price stability. But it's not all smooth sailing. Countries with different economic situations sometimes struggle to keep things balanced, especially when fiscal policies don't quite align. That's where the tensions come in.

Table 5.5

Major trade blocs of the world

Trade bloc	Members	Year of establishment	Economic characteristics
European Union (EU)	27 European countries	1993	A single market with a unified economic and monetary policy (Euro)
USMCA (United States-Mexico-Canada Agreement)	USA, Canada, Mexico	2020 (replacing NAFTA)	A free trade zone with simplified regulatory norms
ASEAN (Association of Southeast Asian Nations)	10 Southeast Asian countries	1967	Regional economic integration with gradual elimination of trade barriers
MERCOSUR (Southern Common Market)	Argentina, Brazil, Paraguay, Uruguay (+ associated members)	1991	A common market for goods, services, and capital, with coordinated economic policies

Speaking of coordination, nations that rely heavily on natural resources tend to band together too. OPEC is the classic example – oil-producing countries setting production levels to control global prices. It's a powerful tool for ensuring energy market stability, though not everyone loves how much influence it has.

Then there are financial alliances – big names like the IMF and the World Bank, which step in when economies hit rough patches. They provide financial aid, push for reforms, and, in general, try to keep things from spiraling out of control. More recently, there's been a shift toward alternative financial institutions, like the BRICS New Development Bank, which offers different funding models,

particularly for developing nations that want options beyond the traditional Western-led financial system.

At the core of all these economic alliances is the idea of strength in numbers. Countries team up because, frankly, it's tough to navigate global economic challenges alone. Whether it's dealing with financial crises, managing currency markets, or competing with emerging economies, working together makes it easier to stay afloat. These groups align strategies, coordinate policies, and try to create conditions where businesses can thrive.

A big goal of all these alliances is to boost economic growth – removing trade barriers, setting common standards, improving infrastructure, and making investment more attractive. When countries work together on reducing tariffs and simplifying import/export processes, businesses get to expand, increase production, and stay competitive in global markets. That's the idea, at least. Of course, reality is always messier, but the basic principle holds: economic cooperation, when done right, can lead to long-term benefits for everyone involved.

One of the big things economic alliances do is try to keep financial markets stable. The global economy is unpredictable – markets swing, unexpected crises pop up, and when one country struggles, the effects can quickly spread. To keep things from spiraling out of control, these alliances set up systems to help out struggling economies, create stabilization funds, and coordinate monetary policies. Take the IMF, for example – it steps in when countries hit financial trouble, offering support to keep them from crashing too hard and helping them stay afloat during rough patches.

Then there's the issue of resource management, which isn't just about oil or raw materials – it's also about people, infrastructure, and production. When countries work together, they can make better use of their resources, co-develop industries, improve transportation networks, and make sure essential goods keep flowing. OPEC is a classic example – oil-producing nations coordinating production levels to keep prices somewhat predictable. Love it or hate it, it helps stabilize global energy markets, which benefits both suppliers and buyers.

Another major area where economic alliances make an impact is tech and innovation. In today's world, staying ahead in technology is

everything. Countries working together on research, education, and scientific breakthroughs can move much faster than those going solo. Alliances allow them to pool resources, share knowledge, and push forward in fields like AI, biotech, renewable energy, and more. A great example of this is the EU's Horizon Europe program – it funds research projects, promotes collaboration, and helps integrate new technologies into industries across member states. It's the kind of initiative that not only drives innovation but also strengthens long-term economic growth.

So, in the grand scheme of things, these alliances aren't just about trade regulations or financial safety nets. They're shaping long-term economic strategies, keeping markets steady, and driving development in ways individual nations often can't do alone.

And of course, there's globalization, which makes all of this even more important. It's opened up huge opportunities for international cooperation, but it's also made economies more dependent on each other. Trade, finance, and investments move faster than ever, which is great – until something goes wrong. The 2008 financial crisis showed just how quickly problems in one region can spread worldwide. That's why economic alliances matter so much – without coordination, these crises can hit harder and take longer to recover from.

At the end of the day, economic alliances are about trying to manage all this complexity. They help countries navigate challenges, seize opportunities, and (hopefully) create a more stable and prosperous global economy. Of course, nothing is ever perfect, but in a world this interconnected, going it alone just isn't a realistic option anymore.

At the same time, globalization intensifies competition among countries and regions, compelling them to seek new strategies to maintain economic standing. This dynamic drives the growth of regional economic alliances, allowing nations to maximize resource efficiency, collaborate on research and development, and enhance industrial cooperation. Alliances such as the EU, USMCA, and ASEAN illustrate how countries can collectively strengthen their competitive advantages and bolster economic resilience, ensuring sustainable development in an increasingly interconnected world.

Another crucial aspect of globalization is digitalization and

technological breakthroughs, which are fundamentally transforming traditional mechanisms of international cooperation. New digital platforms, financial technologies (FinTech), artificial intelligence, and big data are paving the way for innovative economic partnerships. For example, blockchain technologies and cryptocurrencies are creating alternative financial systems, reshaping international financial transactions and compelling economies to adapt to new financial realities.

At the same time, globalization has intensified environmental and social challenges, prompting international economic alliances to seek sustainable solutions for resource conservation and the advancement of the green economy. A growing number of countries are implementing environmental responsibility policies aimed at reducing CO_2 emissions, developing renewable energy, and supporting the circular economy. Alliances such as the European Union play a leading role in setting environmental standards and promoting sustainable development principles on a global scale.

So, globalization has completely changed how economies interact. It's not just about trade anymore – it's about survival in an increasingly interconnected world. That's why economic alliances aren't just a nice idea; they're absolutely necessary. They help stabilize markets, coordinate policies, and deal with all the unpredictable challenges that keep popping up in the global economy. And let's be real, as risks keep piling up and the financial landscape keeps shifting, these alliances are only going to become more important.

History is full of economic disasters, and every major crisis has forced countries to rethink how they manage financial stability and trade. No country can handle these crises alone – just look at what happened during the Great Depression or the 2008 financial meltdown. Over time, nations figured out that cooperation was the only way forward, and that's how we ended up with the international economic structures we have today. Understanding how these mechanisms evolved gives us some insight into what worked, what didn't, and what we might need in the future to keep things from falling apart again.

The Great Depression was probably the biggest economic catastrophe of the 20th century – it didn't just shake up individual

countries, it completely rewrote the rules of financial governance on a global scale. It all started in October 1929 with the U.S. stock market crash, but that was just the beginning. Banks collapsed, businesses went under, unemployment skyrocketed, and consumer spending took a nosedive.

And even though the world wasn't as interconnected back then as it is now, economies were still tied together enough that the crisis spread like wildfire. American banks pulled back on international loans, which caused financial chaos in Europe. Trade shrank, markets crashed, and to make things worse, countries started turning to protectionist policies – essentially putting up trade barriers, which only deepened the crisis.

The whole ordeal was a brutal wake-up call. Governments finally realized that tackling economic disasters required international coordination. This understanding paved the way for new economic institutions, especially after World War II, when the world desperately needed a fresh financial framework to prevent another global meltdown.

That's where the Bretton Woods system comes in. In 1944, representatives from major economies met in the U.S. to figure out a new financial structure. They ended up creating a system where currencies were pegged to the U.S. dollar, which in turn was backed by gold. The idea was to bring some stability to international finance and make currency markets less chaotic. It worked, for a while, at least, and laid the foundation for the financial world as we know it today.

But it wasn't just about currencies. The conference also led to the creation of institutions like the IMF and the World Bank. The IMF was set up to provide emergency financial aid to countries struggling with balance-of-payments issues, while the World Bank focused on long-term investments, especially for rebuilding economies and developing infrastructure. These institutions have played a major role in global finance ever since, helping countries through economic crises and funding major development projects.

So yeah, economic alliances aren't just a modern trend – they've been evolving for decades in response to financial disasters. Every crisis pushes countries to cooperate more, adjust strategies, and build new systems to prevent total collapse.

It's not always perfect, and there's plenty of debate about how effective these institutions really are, but one thing's for sure: without economic cooperation, the global economy would be an even bigger mess.

The Bretton Woods system definitely helped stabilize the global economy for a while.

Compared to the financial chaos of earlier decades, it provided a much-needed foundation for predictable currency exchange and international trade.

For a few decades, things were relatively smooth – at least in the sense that there weren't constant, large-scale financial disasters shaking the world every few years.

But of course, no system is perfect. Even with Bretton Woods in place, economic crises still popped up from time to time, forcing global institutions to rethink how they handled financial instability. The world economy kept evolving, and so did the challenges that came with it.

Take the Latin American debt crisis in the 1980s, for example. It was one of the first major tests for the IMF. Throughout the previous decades, many Latin American countries had taken on massive loans, betting on strong economic growth to pay them back. But when interest rates spiked and global economic conditions shifted, these countries suddenly found themselves drowning in debt, unable to make their payments.

The IMF had to step in with structural adjustment programs – basically, economic reforms designed to help countries restructure their debts and get back on track. These programs weren't always popular (they often came with strict conditions), but they played a big role in helping Latin American economies stabilize and start growing again.

This crisis was just one of many that showed how international financial cooperation had to keep evolving. The Bretton Woods framework had provided a strong foundation, but the world economy was changing fast, and global institutions had to adapt if they wanted to keep up.

A similar role was played by the IMF and the World Bank during the Asian financial crisis of 1997-1998, when sharp currency fluctuations and large-scale corporate bankruptcies threatened the

financial stability of the entire region.

The 2008 global financial crisis became one of the most severe economic shocks in modern history, deeply affecting the world economy and triggering a domino effect across financial systems worldwide (Table 5.6).

Table 5.6

Key causes, consequences, and measures to overcome the 2008 financial crisis

Category	Description
Key causes	- excessive use of high-risk mortgage loans (subprime mortgages) in the U.S.; - expansion of financial derivatives without proper regulation; - overheating of the real estate market and a sharp decline in housing prices; - collapse of major financial institutions (Lehman Brothers, Bear Stearns); - insufficient oversight of banking operations and credit policies.
Major consequences	- severe liquidity crisis and bankruptcy of financial companies; - rising unemployment and declining household incomes - global GDP contraction and a reduction in investment activity; - intensification of debt-related issues in developed economies; - decrease in trust towards financial markets and banking institutions.
Mitigation measures	- large-scale financial support programs for banks (TARP in the U.S.); - quantitative easing (QE) policies to increase liquidity; - reduction of key interest rates by central banks; - strengthening financial market regulations and banking activities (Dodd-Frank Act); - economic stimulation through government investments and tax incentives.

Crisis not only exposed the vulnerabilities of global financial markets, driven by high-risk investment practices, but also reinforced the urgent need for international coordination in times of economic turmoil.

The financial meltdown of 2008 didn't just happen overnight – it was years in the making. In the U.S., banks had been handing out risky subprime mortgage loans left and right, fueling a massive real estate bubble. For a while, everything seemed great – property values kept soaring, banks were making money, and borrowers felt like they were winning. But bubbles don't last forever. When it finally burst, it sent shockwaves through the entire financial system.

Big banks in the U.S. started going under, and because of how interconnected global finance had become, the damage didn't stay within American borders. European banks, which had heavily invested in U.S. mortgage-backed securities, suddenly found themselves in serious trouble. Credit markets froze, businesses struggled to access capital, and what started as a financial sector crisis quickly spilled into the real economy. Industrial production dropped, consumer spending tanked, and unemployment skyrocketed across multiple countries. It was bad – really bad.

Governments and central banks had no choice but to step in fast. The usual economic policies weren't going to cut it, and it became clear that a coordinated global response was necessary. That's when the G20, an alliance of the world's largest economies, went from being a discussion forum to an actual crisis management team. In 2008, world leaders met to figure out how to stop the collapse and prevent things from getting even worse.

The priority was clear: stabilize the financial sector and restore trust in banks. Countries rolled out massive stimulus packages, pumping money into economies to keep businesses afloat and get credit markets moving again. Bailouts were handed out to major financial institutions, not because they deserved it, but because letting them fail would have caused even greater chaos. At the same time, governments introduced tougher regulations to prevent banks from taking the kind of reckless risks that had led to the crisis in the first place.

One of the most important parts of the G20 response was getting central banks to work together. They coordinated interest rate cuts, kept a close eye on currency fluctuations, and took steps to prevent panic-driven market crashes. The idea was to stop the downward spiral before it became completely uncontrollable.

It wasn't an instant fix, but these measures helped to slowly

restore stability. The global economy eventually recovered, but the crisis left behind some hard lessons – lessons that, hopefully, will prevent a similar disaster in the future. Then again, financial markets have a habit of repeating history, so only time will tell.

So, the 2008 financial crisis was a huge mess, and naturally, the International Monetary Fund (IMF) and the World Bank had to step in. They'd dealt with financial crises before, but this one was something else – way bigger, way more complicated. They had to rethink their whole approach, expanding their programs and throwing a lot more money into emergency aid to keep economies from completely collapsing.

For the IMF, the focus was on helping out countries whose financial systems were on the brink. A lot of places, especially in Eastern Europe and Latin America, were suddenly facing the real possibility of default. Foreign investors pulled back, exports tanked – it was bad. So, the IMF had to pump in massive amounts of funding, handing out loans to stabilize banks and keep things from spiraling out of control.

Meanwhile, the World Bank took a different approach. It wasn't just about keeping banks afloat; it was about helping economies actually recover. They funneled money into infrastructure projects, job programs, and small business support – things that might actually help people in the long run. Developing countries got hit especially hard because, well, they always do when global markets crash, so this support was critical.

One of the biggest takeaways from the crisis was a major rethink of how global financial institutions should operate. They got more regulatory power, crisis response mechanisms were beefed up, and developing countries even got a bit more say in how decisions were made. Whether that actually made a huge difference is another question, but at least in theory, things changed.

Of course, it wasn't just the IMF and the World Bank doing the heavy lifting. Central banks, like the U.S. Federal Reserve and the European Central Bank, played a massive role in trying to steady the economy. Their job was to bring back confidence in the financial system and keep money flowing, so businesses and households wouldn't just collapse under the weight of frozen credit markets.

One of the biggest moves was slashing interest rates – basically

making borrowing dirt cheap. The Fed in the U.S. took rates down to nearly zero, and Europe followed suit. The idea was to encourage spending and investment, to stop businesses from folding left and right.

Then there was quantitative easing, or QE – a fancy way of saying central banks started buying up government and corporate bonds on a massive scale. The U.S., the EU, Japan, and the U.K. all jumped in on this, flooding their economies with liquidity. It helped stabilize things, sure, but it also led to other problems, like soaring public and corporate debt, which was going to be a headache later.

Looking back, the 2008 crisis was a real wake-up call. It showed just how fragile the financial system was, but also how crucial international cooperation is when everything goes sideways. The response wasn't perfect, far from it, but without those emergency measures, things could have been a whole lot worse. And in the end, it forced some much-needed changes in global financial governance, even if some of those problems still linger today.

Even with all the measures taken, the big problems in financial markets haven't really gone away. That's just how it is. Every crisis forces international economic alliances to tweak their strategies, trying to stay one step ahead of whatever mess comes next. But the reality is, they're always playing catch-up.

If history has shown anything, it's that no country, no matter how rich or stable, gets through financial turmoil untouched. Every big economic shock, from the Great Depression to 2008, has brought the same familiar problems: production slows down, unemployment shoots up, global trade shrinks, and financial systems wobble. In these moments, economic alliances become more than just discussion clubs – they turn into damage control centers, scrambling to prevent a bad situation from getting worse and figuring out how to rebuild.

One of the biggest lessons from past crises. Timing is everything. The quicker countries make decisions and align their policies, the faster they can stabilize things. When governments drag their feet, the fallout only gets worse. The 2008 crisis proved that delays in action meant deeper economic pain, whereas coordinated moves, like massive bank bailouts, monetary stimulus, and direct cash injections into industries, helped speed up recovery.

Another major takeaway was the urgent need for financial reform. Every crisis exposes weaknesses in the system, and 2008 was no exception. Risky financial products, reckless lending, and a general lack of oversight were all part of the disaster. In response, global financial institutions, especially the IMF and World Bank, pushed for stricter banking rules. The Basel III regulations were a major step, making banks hold more capital and improving risk management. But let's be honest – regulations always trail behind the financial sector, which is constantly coming up with new, sometimes dangerous, ways to make money.

Past crises also showed just how important strong economic alliances are. Take the G20, for example. Before 2008, it was mostly a talk shop. After the crisis, it became a real player in global economic governance, proving that when things get rough, international alliances need actual power, not just good intentions.

And then there's the issue of what's coming next. The world is changing fast, and new crises are always around the corner. Geopolitical conflicts, trade wars (like the ongoing tensions between the U.S. and China), disruptions in global supply chains – all of these could trigger fresh economic shocks. If economic alliances want to stay relevant, they need to go beyond crisis management. That means setting up better mechanisms to prevent conflicts, creating fairer arbitration systems, and using diplomacy to keep trade running smoothly.

And let's not forget climate change – it's becoming a serious factor in global economic policy. Countries are shifting toward greener economies, cutting emissions, investing in renewables, and tightening environmental regulations. This isn't just about saving the planet; it's also about reshaping industries, investments, and trade policies. Economic alliances can't just focus on keeping financial markets stable anymore – they have to actively support the transition to sustainability, funding projects that make long-term sense rather than just patching up short-term problems.

At the end of the day, every crisis is a wake-up call. Some lessons stick, some get ignored until the next disaster. But one thing is clear – without real international cooperation, things can go from bad to worse fast.

Equally significant is the digitalization of the global economy and

its profound impact on financial systems. Rapid technological advancements – particularly in artificial intelligence, blockchain platforms, digital currencies, and financial technologies (FinTech) – are reshaping traditional mechanisms of economic governance. Central banks are increasingly considering the introduction of central bank digital currencies (CBDCs), which could alter the role of international financial institutions and transform existing economic interaction models. In this evolving landscape, international economic alliances must take the lead in establishing unified standards for digital financial technologies, ensuring their security, reliability, and seamless integration into the global economic framework.

Thus, the lessons of past crises clearly demonstrate that international economic alliances are not merely an integral part of the modern global economy but also key players in crisis prevention and the development of effective response mechanisms. Their role will only grow in the future, as global challenges become increasingly complex, and economic interdependence demands even greater coordination and faster decision-making.

History has shown that strong international economic alliances can prevent the worst-case economic scenarios. Therefore, the continued evolution of these coalitions, their ability to adapt to new realities, and the expansion of their functions will be crucial to ensuring global financial stability in the 21st century. The future of the international economy will depend on how effectively nations collaborate within these structures, whether they can develop flexible crisis response mechanisms, and whether they will be prepared for challenges that have yet to emerge but are already shaping the trajectory of the global economic system.

The modern world is facing unprecedented challenges that require comprehensive and coordinated solutions. The globalization of economic processes has made national economies increasingly interdependent, meaning that no country can remain unaffected by global disruptions, and every worldwide crisis has a deep and lasting impact. The COVID-19 pandemic, energy and food crises, geopolitical conflicts, and the digital transformation of economies – all these factors are shaping new challenges for international economic alliances.

Amid growing instability, international economic alliances play a pivotal role in stabilizing the global economy. Their primary function is to coordinate responses to global crises, which helps mitigate economic shocks, provide financial assistance to affected countries, and develop long-term development strategies. Organizations such as the G20, IMF, World Bank, WTO, EU, OPEC+, and various regional economic blocs allow nations to respond swiftly to emerging threats and work together to counteract the negative effects of crises.

The COVID-19 pandemic became one of the most severe economic challenges of recent decades. Widespread lockdowns, disruptions in global supply chains, declines in production, and collapsing consumer demand triggered one of the deepest economic recessions in modern history. In such a scenario, international economic alliances were tasked with designing comprehensive crisis-response measures to stabilize financial markets, support economies, and prevent further economic downturns.

The G20 emerged as a central platform for coordinating the efforts of the world's leading economies. Its members implemented financial aid programs to support national economies and devised initiatives to ease debt burdens for developing countries. Additionally, regional economic blocs played a crucial role – for instance, the European Union launched extensive economic recovery programs, directing financial resources toward the hardest-hit sectors, ensuring a more resilient post-pandemic recovery.

The International Monetary Fund (IMF) and the World Bank emerged as the key financial pillars in addressing the economic fallout of the pandemic. Both institutions expanded their lending programs and introduced emergency financing mechanisms to support struggling economies. The IMF allocated hundreds of billions of dollars to stabilize nations affected by the crisis, enabling them to sustain social benefits, finance healthcare systems, and avoid defaults. The World Bank, in turn, concentrated its efforts on funding vaccination programs, strengthening healthcare infrastructure, and supporting small and medium-sized enterprises (SMEs), which suffered the most significant losses during the crisis.

The pandemic also caused severe disruptions in global supply chains. Factory shutdowns, logistical bottlenecks, and shortages of raw materials and components created significant challenges for

global production networks. Industries such as automobile manufacturing, electronics, and pharmaceuticals were particularly hard hit. Restoring global logistics required extensive efforts from international organizations and economic alliances, leading to a reevaluation of existing trade models and increased interest in regional economic integration.

The global energy system is undergoing profound transformations, driven by a combination of factors, including the COVID-19 pandemic, geopolitical instability, and shifts in international energy relations (Figure 5.6).

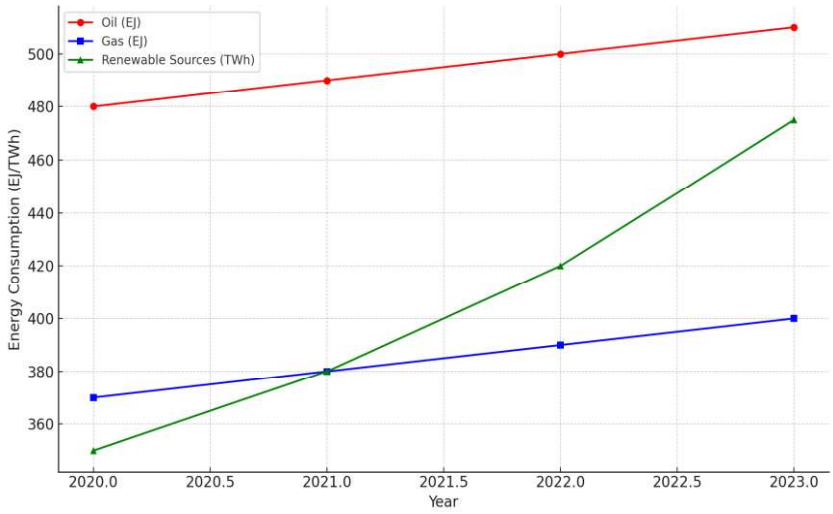


Figure 5.6 Dynamics of Global Energy Consumption (2020-2023)

The reduction in oil and gas production, sharp fluctuations in global energy prices, sanctions, and the restructuring of traditional supply chains have created new challenges for national economies. These factors have forced countries to seek alternative energy sources and revise their energy strategies to ensure long-term stability and resilience.

Energy security has always been a major driver of economic growth, and with all the recent shifts in global markets, countries and international alliances have had to scramble to adapt. OPEC+ has become a big player in keeping the energy market somewhat stable,

regulating oil production to avoid wild price swings that could throw entire economies into chaos.

At the same time, the U.S. and the EU are pushing hard to break free from their reliance on traditional energy suppliers. They've been pouring money into renewables, wind, solar, you name it, and building LNG terminals so they can import liquefied natural gas from a wider range of suppliers. Diversification is the name of the game. No one wants to be stuck depending on one source, especially when geopolitics can turn everything upside down overnight. The EU, in particular, has rolled out ambitious energy security plans that not only aim to make energy supplies more stable but also accelerate the shift toward green energy and lower emissions.

On top of that, a lot of countries are rethinking their energy partnerships altogether, signing fresh long-term deals with alternative suppliers. It's not just about finding new sources – it's about making sure energy flows remain steady, no matter what happens in the global market. In this sense, international alliances are playing a huge role in reshaping the future of energy – focusing on diversification, innovation, and environmental sustainability.

But energy isn't the only crisis unfolding. The food situation is becoming a serious problem, too. Climate change, broken supply chains, and geopolitical tensions are all driving up food prices and making basic commodities harder to get. For millions, especially in developing countries, this means rising hunger, social instability, and a whole set of economic headaches.

Global organizations like the FAO, the World Bank, and the WTO are stepping in to keep food accessible and prevent things from spiraling further (Kovalenko, 2014). They're working on everything from emergency aid programs to long-term agricultural development loans, trying to keep supply chains intact and help countries build more resilient food systems. Technology is also changing the game – better digitalization means fewer losses in transportation, more efficient distribution, and smarter management of food production.

And then, of course, there's the elephant in the room: geopolitical instability. Wars, sanctions, trade restrictions – these things have become major disruptors for global markets.

When a country gets hit with economic isolation, supply chains get tangled, financial markets take a hit, and entire industries are

forced to recalibrate (Kovtunenko, 2018).

In response, countries are reassessing their strategies, forming new alliances, and trying to build some kind of economic buffer against uncertainty. Sanctions have become one of the go-to tools for international organizations trying to enforce rules, but their impact goes far beyond politics – they're reshaping global trade patterns and forcing economies to adapt in unpredictable ways.

Once conflicts settle down, the real challenge begins: rebuilding. This is where organizations like the World Bank, the EBRD, and the UN step in, funneling resources into infrastructure, business recovery, and investment programs to get war-affected economies back on their feet (Kozak, 2017). The goal isn't just about fixing what's broken – it's about creating long-term stability and making sure these regions can integrate back into the global economy.

At the end of the day, whether it's energy, food, or geopolitics, the world economy is in a constant state of flux. No one really knows what the next big crisis will be, but one thing's for sure – countries and international organizations have to stay flexible, ready to adapt, and willing to work together if they want to keep things from falling apart.

The rapid advancement of digital technologies and financial innovations is opening new avenues for strengthening international economic alliances, particularly during periods of crisis (Figure 5.7). The adoption of financial technologies (FinTech), cryptocurrencies, blockchain solutions, and digital platforms enables countries to adapt more efficiently to emerging challenges, streamline bureaucratic processes, and enhance the transparency of financial transactions. These innovations are not merely facilitating economic recovery but are also reshaping the very foundations of international economic cooperation, offering new tools for resilience and growth in an increasingly interconnected world.

International financial institutions are actively exploring the potential implementation of Central Bank Digital Currencies (CBDCs), which could significantly reshape the global financial system. During periods of economic crises, digital financial instruments provide a faster and more efficient means of mobilizing resources, ensuring monetary stability, and promoting financial inclusion. By enabling seamless transactions and reducing reliance

on traditional banking infrastructures, these innovations can help mitigate financial disruptions and enhance economic resilience.

Thus, contemporary global crises reaffirm that international economic alliances are not merely instruments of economic stabilization but also key drivers of adaptation to emerging challenges. Their effectiveness hinges on their ability to respond swiftly to evolving conditions and develop innovative mechanisms for collaboration, ensuring the long-term stability of economic systems.

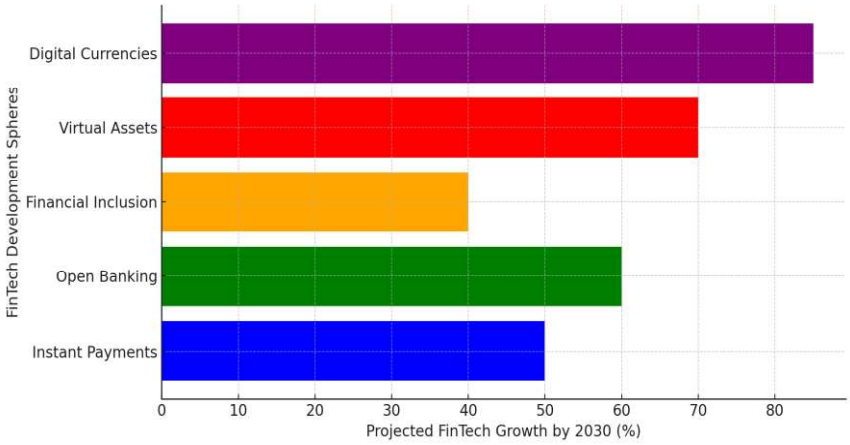


Figure 5.7 Forecast of Financial Technology (FinTech) Development by 2030

The world is facing a whole new level of economic challenges, and they're reshaping the way countries work together. Globalization, digitalization, climate change, regional conflicts, financial crises – it's all moving so fast that international economic alliances have to rethink their strategies constantly. They can't just rely on the old models anymore. Instead, they have to adapt, stay ahead of the curve, and come up with new ways to keep the global economy stable. If they get it right, they can make the whole system more resilient and find ways to navigate the chaos of an increasingly interconnected world.

Going forward, everything will depend on how well countries can coordinate their actions, make quick decisions, and actually work

together instead of just talking about it. Economic alliances will have their hands full trying to restructure the global economy, deepen regional integration, push for sustainability, embrace digital finance, and, in general, just make sure their institutions are keeping up with the times.

The economy isn't what it used to be – it's constantly shifting under the weight of major structural changes. Some of these changes bring new risks, while others open doors for fresh opportunities. What's clear is that several big trends are shaping the future: economies are more interconnected than ever, digital transformation is speeding up, technology and innovation are becoming the backbone of global markets, and sustainability is no longer just a buzzword – it's a necessity.

One of the biggest headaches for economic alliances right now is the rise of national protectionism. More and more countries are focusing on their own interests, putting up trade barriers, and limiting foreign investments. While this might seem like a way to protect local economies, it often ends up doing more harm than good in the long run. The reality is that problems like economic inequality, climate change, and financial instability aren't things any country can handle alone – they need collective solutions. That's why international alliances are searching for new ways to strike a balance between national priorities and global stability.

And then there's the tech revolution. Digital technologies and artificial intelligence are flipping traditional economic partnerships on their heads. Big data, automation, e-commerce – all of these are changing the way businesses operate and how economies interact. To keep up, international alliances are focusing on setting common digital standards, regulating financial transactions in the digital world, and making sure that innovation doesn't just benefit a few but helps create a more balanced global economy.

At the same time, regional economic alliances are becoming more important than ever. It's not just about trade anymore – there are deep political and economic motivations driving regional integration. With uncertainty looming over everything from global supply chains to financial markets, more countries are relying on regional partnerships to protect their interests and stay competitive. As globalization slows down, protectionist policies rise, and geopolitics

keep shifting, these regional economic blocs are turning into some of the most crucial players in ensuring economic stability and growth.

The bottom line. The world economy is in a constant state of transformation, and international cooperation is more essential than ever. The challenge is figuring out how to make that cooperation work in a way that benefits everyone – because without it, the risks only get bigger.

So, one of the best examples of regional integration that actually works is the European Union. It started as just a simple free trade thing but eventually turned into this massive economic and political bloc with its own currency, a shared market, and a bunch of rules that (mostly) keep things running smoothly. Another important one is the USMCA – basically, a deal between the U.S., Mexico, and Canada that helps goods and services move across borders without too much hassle. Then you've got things like APEC in Asia and the African Continental Free Trade Area, which are also trying to strengthen economic ties and encourage investment, though their structures and effectiveness vary.

A big reason why countries keep forming these regional alliances is simple: economic stability. When things go south, whether it's a financial crisis or geopolitical chaos, being part of a group like this means you have a safety net. It makes it easier to attract investments, get better trade deals, and avoid getting completely knocked down by global shocks. Plus, it allows countries to coordinate policies, manage their financial systems better, and deal with economic turbulence as a team instead of struggling alone.

But it's not just about trade and stability. These alliances also help countries deal with modern challenges – stuff like digitalization, shifting supply chains, and figuring out how to transition to greener economies without completely wrecking their industries. Working together makes it easier to share technology, support innovation, and provide financial help where it's needed. So, in many ways, these alliances aren't just about trade – they're a major factor in how the world economy adapts to change.

Speaking of change, sustainability has become a huge deal in the last few decades. Natural resources are running out, pollution is getting worse, and climate change is an issue nobody can ignore anymore (well, some still try, but that's another story). Countries and

organizations are realizing that the old ways of doing things just don't work, so they're moving towards greener economic models. Not just because it's good for the planet, but also because it makes sense – less reliance on fossil fuels, more innovation, stronger economies in the long run.

Big organizations like the UN, the World Bank, the EU, and the G20 are pouring money into green projects (Kozak et al., 2020).

The EU's Green Deal, for example, has this ambitious goal of making Europe carbon-neutral by 2050. Other countries are also investing heavily in renewable energy and eco-friendly technologies, which is great – but let's be real, there's still a long way to go.

At the same time, digital financial tech is shaking up the entire global economy. Central banks are looking into digital currencies (CBDCs) that could completely change how money moves across borders. Blockchain tech is making financial transactions more transparent and secure, and decentralized finance (DeFi) is opening up new possibilities for cross-border payments without relying on banks as middlemen. This stuff isn't just experimental anymore – it's becoming a serious alternative to traditional financial systems.

Looking ahead, international economic alliances are probably going to matter even more. Regional integration will keep growing, financial markets will become more digital, and sustainability will stay at the center of economic strategies. But the real challenge for these organizations will be figuring out how to balance national interests with the need for global cooperation.

In the end, the future of these alliances will depend on how quickly they can adapt. If they stay flexible, innovative, and responsive to global challenges, they'll continue playing a huge role in shaping a more stable and interconnected economy. If not – well, history has shown that economic systems that resist change don't last very long.

Conclusions

International economic alliances have long been instrumental in fostering global stability, facilitating trade, and ensuring economic resilience. By coordinating financial policies, regulating capital flows, and supporting investment, these alliances contribute to sustainable economic growth and crisis mitigation. Their influence

has been particularly evident in times of financial instability, when collective action has helped stabilize markets and accelerate recovery. The evolution of these alliances reflects their capacity to adapt to shifting global economic conditions. Historical milestones, such as the formation of the Bretton Woods system, the establishment of the International Monetary Fund (IMF) and the World Bank, and the expansion of regional economic blocs like the European Union (EU), underscore their role in addressing international financial challenges. A primary function of these alliances is maintaining financial stability, which is achieved through various mechanisms, including stabilization funds, coordinated monetary policies, and credit support frameworks, as seen in initiatives such as the European Stability Mechanism. Beyond financial governance, these alliances actively promote technological progress. Many provide funding for research and innovation, fostering advancements in digital finance, blockchain applications, and Central Bank Digital Currencies (CBDCs). By supporting these developments, economic alliances contribute to the modernization of financial systems and enhance global economic security. Additionally, they play a significant role in energy and food security. Organizations such as OPEC+ and the Food and Agriculture Organization (FAO) work to stabilize commodity markets, regulate supply chains, and prevent resource shortages. Another notable trend is the rise of regional economic integration. Trade agreements and economic partnerships, such as the US-Mexico-Canada Agreement (USMCA), the Association of Southeast Asian Nations (ASEAN), and the African Continental Free Trade Area (AfCFTA), promote economic diversification, increase market access, and optimize resource allocation. However, the effectiveness of these alliances is contingent on their ability to respond to modern challenges, including protectionist policies, geopolitical tensions, and the increasing fragmentation of global supply chains.

In conclusion, international economic alliances continue to shape the modern economic landscape. Their role extends beyond crisis management to fostering innovation, facilitating sustainable development, and strengthening economic interconnectivity. Looking ahead, the success of these alliances will depend on their ability to embrace technological change, enhance policy

coordination, and maintain flexibility in an increasingly complex and competitive global environment.

References:

1. *Chunikhina, T., Korzh, M., Krasnoshchok, V. (2024). International trade in the context of global transformations. Foreign Trade: Economics, Finance, Law, (2), 30-52 [in Ukrainian].*
2. *Funke, M., Zhong, D. (2022). The political globalization trilemma revisited: An empirical assessment across countries and over time. Economics & Politics, 36(1), 177-201 [in English].*
3. *Hetmanets, O.P., Korobtsova, D.V., Yezhelyi, Yu.O. (2023). Globalization and international economy: The complexity of market integration and economic consequences at the country level. Academic Visions, 20. Retrieved from: https://dspace.univd.edu.ua/server/api/core/bitstreams/35cea810-1e85-4730-92c2-73e4dde869cf/content [in Ukrainian].*
4. *Kalchenko, T.V. (2006). Global Economy: Methodology of Systemic Research. Kyiv: KNEU [in Ukrainian].*
5. *Kasych, A.O., Chumachenko, Yu.V. (2017). International strategic alliances as a factor in the development of competitive advantages of enterprises. Economy and Society, 13, 78-83 [in Ukrainian].*
6. *Kozak, Y., Shengelia, T., Gribincea, A. (Eds.). (2020). World Economy and International Economic Relations: International Scientific Collection. Vol. III. Kyiv: «Tsentr uchbovoi literatury» [in English].*
7. *Kozak, Yu.G. (2017). International Economics: Questions and Answers. Kyiv: «Tsentr uchbovoi literatury» [in Ukrainian].*
8. *Kozak, Yu.G., Kovalevskyi, V.V., Logvinova, N.S. (Eds.). (2018). World Economy. Kyiv: «Tsentr uchbovoi literatury» [in Ukrainian].*
9. *Korzh, M.V., Fomichenko, I.P. (2023). International strategic alliances as a factor in competition development in the IT industry. Actual Problems of Economics, 12(270), 64-74 [in Ukrainian].*
10. *Kutsyk, P.O., Kovtun, O.I., Bashnianyn, H.I. (2015). Global Economy: Principles of Formation, Functioning, Regulation, and Development. Lviv: Vydavnytstvo LKA [in Ukrainian].*
11. *Makedon, V.V. (2010). International Strategic Alliances of Companies. Dnipro: Vydavnytstvo DUEP [in Ukrainian].*
12. *Pavlov, O.I. (2022). Global transformations of international economic relations. Scientific Bulletin of Uzhhorod National University, 42, 106-112 [in Ukrainian].*
13. *Voronova, O., Marushchak, S., Pugachov, M. (2023). Global financial and economic crises and their impact on the economy of states. Economy and Society, 51. Retrieved from:*

https://economyandsociety.in.ua/index.php/journal/article/view/2459/2378 [in Ukrainian].
14. *Kovalenko O.M. (2014). Strategy and mechanisms for regulating the activities of vertically integrated structures in the food industry. Kherson: Hryn D.S., 356 p. [In Ukrainian]*.
15. *Kovtunenko, K.V. (Ed.). (2018). Management of foreign economic and innovation activities (for masters). Kyiv: «Tsentr uchbovoi literatury» [In Ukrainian]*.

Andrius Tamošiūnas
ORCID: https://orcid.org/0000-0003-1521-0572
PhD in Social Sciences, Associate Professor, Faculty of Business Management
Vilnius Gediminas Technical University
(Vilnius, Lithuania)

EVALUATING THE SOCIAL UTILITY OF BUSINESS MEASURES FINANCED BY EUROPEAN STRUCTURAL AND INVESTMENT FUNDS: A CASE STUDY OF LITHUANIA

https://doi.org/10.5281/zenodo.15710079

Abstract
The utilisation of the 2021-2030 European structural and investment funds in Lithuania is gaining traction, highlighting the necessity for the comprehensive deployment of these funds. It is imperative to ensure that the funds facilitate specialised areas and encompass multidirectional funding and benefits for the state, its populace, and enterprises. Considering the need for further development in Lithuania's social business sector, the responsibility for delivering public goods lies with the Government of the Republic of Lithuania and other relevant entities. Lithuania should capitalise on the opportunity presented by European Union investments to promote the establishment and provision of social utility. The application of the TOPSIS multi-criteria technique confirms that this objective can be achieved by directing investments toward social business and the generation of public goods. Engaging private operators, who are the primary beneficiaries of the investment, to expand their operations and improve profitability can also create positive social utility as an ancillary benefit without incurring additional losses or burdens. Consequently, the findings also reveal opportunities for applying this approach to evaluate public and private investments across diverse economies globally.

Keywords: *European structural and investment funds, social utility, multi-criteria methods, expert evaluation.*

1. Introduction

Lithuania's EU membership offers significant utility through cohesion policy and European structural and investment (ESI) funds, which are crucial in driving the country's economy. In Lithuania,

€6.709 billion has been allocated to implement the priorities and objectives of the 2021-2030 National Progress Programme (Savickas, 2021). Most of this investment will support private farms to enhance their competitiveness, efficiency, expansion, adaptation to market changes, new product development, and scientific experimentation. These business-focused activities, funded by ESI funds, emphasise the need to evaluate social utility in EU business funding measures, an emerging and relevant area for decision-making in planning and implementing investments and measures to address business interests and societal needs.

Social utility denotes the beneficial impact of economic activities on society. Presently, a predominant focus on amplifying production outputs and financial gains has led to the neglect of the social and environmental repercussions, underscoring the pressing contemporary relevance of emphasising social utility promotion and its associated facets. Within this context, aligning entrepreneur objectives and allocating available ESI funds towards fostering a positive spillover effect, i.e., engendering social utility through business financing, becomes feasible. Nevertheless, the subjective nature of defining and measuring social utility poses challenges. Additionally, private and public investments necessitate the navigation of competing priorities encompassing economic growth, environmental conservation, social welfare, and public health, engendering formidable trade-offs. These trade-offs may warrant information asymmetry due to the intricacy and specificity of technical and economic investment data.

Consequently, the assessment of investments' social utility is intricate due to the absence of explicit metrics and methodologies, compounded by insufficient comprehensive scholarly research in this domain. Hence, the imperative for formulating efficacious assessment frameworks and metrics is underscored. Following this exigency, the author focuses on scrutinising the assessment of social utility in business projects, with the objective of identifying the most pertinent approach for evaluating the social utility of EU-funded business initiatives. Respectively, the objectives of the research are as follows:

To analyse the theoretical aspects of social utility and methods of measuring them.

To develop a combined approach to assessing the social utility of EU-funded business measures.

To assess the social utility of EU-funded business measures in an experimental setting.

This article is divided into five parts. The second part focuses on defining social utility and subsequently assessing options for evaluating the social utility of business instruments financed by ESI funds. The third part reveals the assessment methodology based on the application of the TOPSIS multicriteria technique. Part 4 presents the main findings from using the proposed methodology for assessing the social utility of business measures financed by ESI funds. Based on the research results in part 5, a funding chain that generates social benefits is developed. The final section presents conclusions and insights for future research.

2. Understanding social utility and options for assessing the latter in business projects financed by ESI funds

2.1. Concept of social utility

In a broad sense, the most prevalent social utility pertains to social benefit, which is associated with the positive impact of economic activities on society. In this context, the term 'social benefit' is frequently employed in scholarly works, textbooks, and other literature addressing economic issues; however, dictionaries and manuals of economic terminology often fail to provide a definitive meaning for this term. In rare instances, only a concise explanation is offered, such as 'a benefit to society.' Consequently, it can be concluded that there is no clear and universally accepted definition of this term. For example, social benefits to individuals are regarded as a topic in relation to individual needs. In this regard, each individual within society, possessing diverse interests and positive benefits, whether social or otherwise, will also have varying interpretations when assessing the value of the benefits created, particularly in terms of personal significance to themselves.

The ongoing debate regarding the definition of social utility as a positive impact of an economic entity on society is further substantiated by the concept of social benefit, which encompasses not only the society at large but also the notion of non-closure. It is often acknowledged (Curt et al., 2022) that this definition primarily emphasises the impact on society, yet it fails to consider the

dissemination and inseparability of the benefits created. Given the abstract nature of the presented definition of social benefit, it does not adequately address the harmonious structure of social relations, public interests, nor does it highlight the concept of sociality. Thus, a more comprehensive examination of the social benefit concept is warranted. Furthermore, it is essential to recognize that the International Public Sector Accounting Standards Board (IPSASB, 2016) delineates two types of social benefits: those acquired in absolute value and those obtained in kind. The initial definition of social benefit pertains to transfer payments received by individuals in absolute value, whereas the latter encompasses services provided to individuals or society, either by or on behalf of public sector entities. In this context, social benefits are interpreted as public goods, while the creation of social benefits is understood as their provision to the market. In this regard, social benefits are equated by other scholars (Maas & Rousseau, 2024) with the offering of public goods in the marketplace, who contend that social benefits can be perceived as non-commodity products that generate positive externalities, which are challenging to assign a monetary value due to the absence of defined market prices for such goods. Consequently, the concept of social capital is regarded as embodying the roles of relationships, connections, and networks among individuals within the socio-economic domain. Accordingly, social capital may be defined as a public good that equips communities with enhanced planning capabilities. Therefore, social capital, as a public good, serves the entire community, emphasizing that it is a characteristic of a specific social entity rather than of the individual; individuals serve as providers of this good. As a public good, social capital remains accessible and yields benefits not only for its creators but also for a broader array of recipients, thus exhibiting the traits of a public good. Additionally, it must be acknowledged that public goods are characterized by inseparability and non-competitiveness, meaning that there are no technical or economic mechanisms to utilize the public good without segmenting consumers, and its value remains unaffected by the presence of additional consumers. Nonetheless, public goods may subsequently demonstrate characteristics of inseparability, partial inseparability, and separability, in addition to possessing the potential to be classified as either non-competitive or

competitive (Dabush et al., 2023). These characteristics are delineated as follows:

1. Segregated public goods pertain to specific activities of closed groups within society, which may encompass similar activities or individuals residing in the relevant region, as well as all taxed public goods (such as entrance fees and tolls).

2. Partially inseparable public goods include those goods whose separability arises from their geographical location. An individual located in a different administrative territorial unit is separated from the public goods shaped by the political, cultural, or natural environment there. However, when this individual moves to that place, they become inseparable from those goods, including the effective work of municipal institutions, a low unemployment rate, a positive image of the region, and favourable conditions for business. Consequently, human capital can be defined as a form of partially inseparable public goods, as it positively correlates with employment, a lower unemployment rate, a higher education level, and enhances the political and social activity of the population. Greater human capital attracts investors and fosters civic inclusion. It is considered a public good because the benefits of investing in oneself extend beyond the individual to those around them.

3. Integral public goods are universally accessible to all individuals, regardless of their place of residence, and are generally exempt from taxation; moreover, all public goods should not exhibit any indications of discrimination.

Based on the above context, the properties of inseparability and non-competitiveness can be attributed to public goods. The latter can also be divided into competitive and non-competitive categories, considering those goods competitive when their value, ease of use, or other physical properties change, although they do not disappear due to additional users.

Considering the definitions of social benefits provided by the International Public Sector Accounting Standards Board (IPSASB, 2016), it must be concluded that social benefits from public goods are created when those goods possess the characteristics of inseparability (or partial inseparability) and non-competitiveness, since inseparable public goods partially violate the concept of sociality. Consequently, the social benefits created must exhibit the

property of indivisibility; that is, the benefits must be provided to a large group of people rather than to an individual. Additionally, competing public goods do not entirely align with the understanding of the public interest; when an additional individual in society uses a competing public good (satisfying their interests), the invulnerability of others in society to the usefulness, convenience, and changes in the physical characteristics of the public good is not guaranteed. It is important to note that the introduction of inseparable (or partially inseparable) and non-competitive public goods into the market is fundamentally a process based on altruism. An individual or economic entity representing a level of pure selfishness is unlikely to be interested in creating and providing public goods free of charge; thus, the introduction of public goods into the market is primarily carried out by the State or entities acting on its behalf, or, at the very least, facilitates the preparation and implementation of publicly financed goods projects. On this basis, there can be a requirement for the parallelism of social benefits created by private entities, meaning that the benefits generated for society must parallel those obtained by the private entity, both in terms of value and duration.

Considering the aforementioned context, it must be stated that while analysing the social benefits generated by public projects, it becomes evident that implemented projects aimed at producing public goods may also have adverse consequences. These consequences typically do not manifest at the point of project implementation but rather in the surrounding environment. For instance, the establishment of recreational areas in natural settings demonstrates negative outcomes, such as the degradation of the landscape and increased pollution of the local environment, thereby undermining the principle of public interest. In this regard, the social benefits of public investment projects can be characterised as intentional public goods, which are contingent upon the execution of public investment project activities that are not supplied via the market system. These benefits are manifested in the enhancement of the social environment for members of society, providing moral (spiritual) satisfaction, as well as mitigating the risks associated with negative impacts on the social environment. It is noteworthy that the defined concept emphasises additional criteria for social benefits – goods not provided through the market that improve conditions

within the public environment and diminish adverse effects on the social setting. The generalized characteristics of social benefits essentially encapsulate the analyzed concept of sociality and the perspectives of other scholars concerning the indivisibility of social benefits. Nonetheless, it is important to recognise that scientists are still in search of suitable methods for assessing social benefits that are currently under development. These latter aspects are the focus of the subsequent chapters.

2.2. Options for evaluating the social utility of business projects financed by ESI funds

During the 2021-2030 EU funding period, direct investments reached businesses mainly through measures administered by the Ministry of Economy of the Republic of Lithuania (the Ministry of Economy). During the investment period under review, the Ministry of Economy administers EUR 1.026 billion, of which as much as EUR 534 million is directly targeted at business development (promotion and development of the competitiveness of small and medium-sized enterprises). All 20 measures developed by the Ministry of Economy in the business area of National Progress Programme (Savickas, 2021) Priority 3, "Promoting the Competitiveness of Small and Medium-sized Enterprises (SMEs)" (including two financial measures and five global grant measures) are divided into four main investment objectives:

1. Specific objective 3.1.1 "Increase the level of entrepreneurship",
2. Specific objective 3.2.1 "Increase internationalisation of SMEs",
3. Specific objective 3.3.1 "Increase productivity of SMEs",
4. Specific objective 3.3.2 "Increase SME investment in eco-innovation and other resource-efficient technologies".

All the objectives focus on creating economic infrastructure, renewing technology and technological facilities, cost-effectiveness, development, marketing measures, and investment in eco-innovation. These investments are skewed towards increasing labour productivity because of the expected lasting effects of economic growth. It is important to note that these tangible infrastructure investments not only raise incomes through the multiplier effect but also fuel domestic consumption, i.e. the investment generates a persistent but depreciating supply-side effect (Kosmopoulou & Press, 2022) and Keynesian demand growth (Murakami, 2023; Rada et al., 2023a).

However, this growth in demand can only be observed when investment funds are constantly in use (Chen et al., 2024; Gupta et al., 2022). Respectively, it can be observed that supply-side growth in the domestic economic sectors also leads to increased social utility. According to counterfactual data analysis (Lithuania State Data Agency, 2023), EU funds invested during 2021-2023 created 27,000 new jobs, which led to a 2% decrease in the unemployment rate in the country and an increase in the average wage by 3% after the final disbursement of project funds by the beginning of 2024. It should be noted that jobs created and average wages are used to highlight the social utility of ESI funds for the public. Still, as a measure of social utility, they should be treated with extreme caution and criticism, as:

1. Unemployment is highest among those with a medium level of education and potentially minimum income, and the jobs created by ESI funds are high value, requiring specific scientific and professional skills for which a medium level of education is insufficient. Similarly, the requirements to create jobs that pay at least the national average wage are likely to disadvantage the group of people who are most affected by unemployment, as the employer's payment of average and higher salaries will exclude them from the selection process by imposing appropriate criteria on professional and scientific knowledge and skills (Bennett et al., 2024).
2. As mentioned above, this job growth is essentially linked to Keynesian supply-side growth, i.e. a disruption in the flow of ESI funds could lead to an extreme increase in the unemployment rate (Acemoglu & Restrepo, 2018, 2019; Rada et al., 2023b), amplified by a wave of bankruptcies caused by the collapse of companies. The latter, in principle, have survived only with the help of ESI funds or have not been able to make good use of it to compete in the market.
3. Job creation criteria defined in the specifications of the measures' financing conditions and the wages to be paid may lead businesses to create artificial jobs to be selected for their projects and to achieve the indicators' results (Bahloul Zekkari, 2024).

Considering the above, the aim is to find a method that reflects tangible and lasting social utility and measures social utility not only because of business investment but also as a positive spill-over effect left over from direct funding for business. This method would

positively affect society's needs without creating an additional administrative or financial burden for companies (Bennett, 2021).

Scholars (Curt et al., 2022; Maas & Rousseau, 2024) acknowledge that measuring social utility is highly complex and tricky, as research data and results are often expressed in different quantitative or qualitative units of measurement. Therefore, objective results of social utility research can be achieved by combining more than one research method, where one of them evaluates the available financial data or indicators, the other – specific aspects of the field of study, or by diversifying the object of evaluation into different levels, thus covering all the possible areas of evaluation (Su & Morsky, 2024). Measuring social utility faces a fundamental problem: What is the right size to define social utility? Since social utility is generally accepted as the positive impact of economic activity on society, it can be understood as providing public goods to the market (Wang & Huang, 2024). Still, in the case at hand, the public goods are to be provided to the market by a private economic operator with an interest in the development and profitability of its activities. Therefore, the public goods would be, in this case, a by-product of the activity/project. In this case, the social utility could be measured in monetary units, number of services provided, volume, and public satisfaction (Bo & Yi, 2024; Dabush et al., 2023). Still, such measurement methods would lead to subjectivity in the study (Vieira et al., 2020), as the social utility will be perceived differently by each aspect and by each member of the public, and given this, the social utility should be defined in terms of evaluation scores and weights, which independent experts would provide, and a final assessment would be achieved using a multicriteria approach (Azman et al., 2023).

3. Methodology for the assessment of the social utility of business measures funded by ESI funds

The evaluation approach chosen for the research in question consists of four steps: selection of experts, weighting of indicators, determination of the consistency of the experts' assessments, and determination of the results. All the stated tasks are to be solved using the Technique for Order Preference by Similarity to an Ideal Solution (TOPSIS; (Thomas et al., 2013). Expert judgment refers to quantitative assessments of processes or phenomena that cannot be measured directly. It is equally important to select the right experts for

the study and to consider the selection criteria in advance. Given that the survey covers social utility and EU investments, the requirements for selecting experts should include experience working on projects with social utility and EU investments and scientific experience. To avoid subjectivity, it is essential to choose experts from all fields. To maintain the accuracy and credibility of the expert assessment, many academics recommend including a minimum of 5 experts in the panel, with an optimal panel size of 8-10 experts (Costa et al., 2019).

It has been shown that, in expert assessment models, the accuracy of the judgements and assessments of a small group of experts is equal to that of a large group of experts (Figure 5.8).

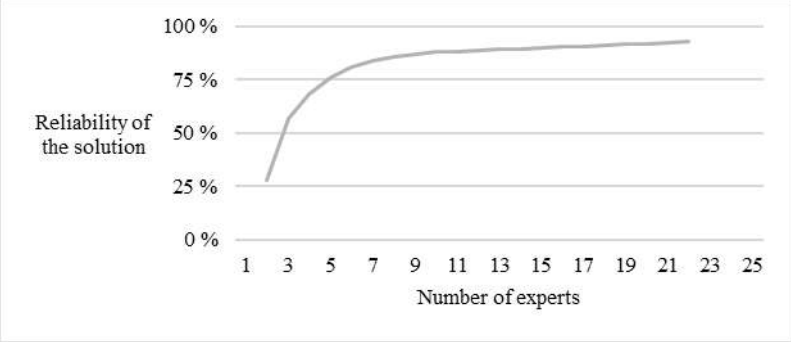


Figure 5.8 Impact of the number of experts on the reliability of the assessment

Source: (Kumar Behera et al., 2023; Thomas et al., 2013).

Still, the accuracy of evaluating a group of three experts is sometimes significantly superior to that of a single or two experts. As the number of experts increases, the precision of the resulting estimates gradually increases, peaking in the group of 5-9 experts (Thomas et al., 2013).

As outlined above, the evaluation will cover all business measures administered by the Ministry of Economy. As all the measures have different objectives but share a common purpose and a standard operating space, the business measures can be considered a system and evaluated in an integrated manner. At the project level, the decision on eligibility for funding is determined by the Facility Financing Conditions Description (hereafter FFCD), which sets out the

requirements for projects prepared by applicants who are eligible to participate in the call for proposals for funding to be granted. The FFCD defines three core sets of requirements that applicants competing for funding must meet:

1. The project must meet the objective of the measure.
2. The funding requested for the project must be eligible for the activities supported.
3. The project must meet pre-defined selection criteria.

These screening components determine the project's eligibility and the intermediate utility-quality assessments and scores, and they are the basis for the experts' decision about whether the business projects will contribute to the creation of social utility.

The most straightforward approach is the direct assessment, where the experts provide the weights of the factors in unit fractions at once. When the number of factors is small, they give the best result (Kumar Behera et al., 2023). This method is straightforward, easy to understand and easy to apply. Unfortunately, the large number of factors makes it problematic. This is because it is becoming increasingly more difficult for an expert to determine the correct relationships between the weights of an increasing number of factors about the phenomenon under consideration. As a result, the inconsistency of opinions is increasing, often exceeding the permissible limits, and the expert survey results cannot be used for further calculations. In the search for a way out of this situation, more sophisticated but improved methods of determining factor weights have been proposed, the most used of which is the analytic hierarchy process (AHP) of Saty (Li et al., 2014; Munier & Hontoria, 2021). Its essence is that the expert must compare only two factors, only some at a time. Unfortunately, a more detailed analysis of its application shows it also needs to improve on similar shortcomings. When stating only the influence of a pair of factors on the phenomenon under investigation, because of their comparison, the expert must, however, weigh in his mind the analogous influence of all the other factors.

Where there are no more than 12 factors, the expert cannot correctly determine the influence relationships between all pairs of factors. This is evidenced by the fact that only in very few cases, and only with a minimal number of factors, does the expert complete the pairwise comparison matrix, which is the basis of the AHP method.

The author of the technique, seeing and understanding this fact, foresaw that, in the event of a discrepancy between the experts' opinions, the assessment would be carried out in several stages, i.e. the experts would be shown their errors and asked to correct them. This hardly increases the accuracy of the assessment since the expert must change his opinion and give a different assessment of the factors to harmonize the matrix. As the number of factors increases, the application of the AHP method becomes practically impossible (Munier & Hontoria, 2021). Therefore, their quantification will be accurate and complete when the formations are broken down in width and depth, i.e., structured. Moreover, every such structure is a system, so its elements are interconnected.

Since it would be difficult for experts to assess all 20 instruments against these three criteria, further diversification is needed. Therefore, the social utility of the EU-funded business measures is further diversified according to the specific objectives and evaluation aspects listed above.

This division simplifies the work of the experts and contributes to more accurate results. The instruments will be diversified and evaluated according to the following aspects: objective of the measure; supported activities; project selection criteria.

The impact of individual criteria on the objective of the object of study varies, and therefore, in the case of quantitative multi-criteria evaluations, it is essential to determine the significance of the criteria, i.e. their weights and the weighting of the impact on the social utility will be carried out in the next stage of the design of the method. The selected experts will have to assess how important each of the four specific objectives and three project evaluation aspects identified in the FFCD are in social utility generation. Most currently known and used methods for weighting the multi-criteria evaluation criteria are based on expert judgment (Liao et al., 2024). The subjective weighting of the criteria is based on the expert judgements of specialist experts. Since the opinions of individual experts are often not identical and may be contradictory, weights as aggregated averages of the experts' opinions can be used in a multi-criteria evaluation if the non-contradictory nature of the experts' assessments has been established, i.e. if it has been demonstrated that the views are statistically consistent (Kaklauskas et al., 2017; Thomas et al., 2013). Kendall's

variance concordance coefficient (Ozdemir, 2024) can be used to determine the concordance of the assessments. Other scholars (Veinhardt & Gulbovaitė, 2016) also confirm that expert judgment assumes that a decision can only be reached if there is consistency between experts' opinions. Once all the data from the expert evaluation has been collected, it is necessary to assess the compatibility of the experts' opinions. If the number of experts is less than two, a correlation coefficient can be used to calculate the level of agreement (in this case, there are eight experts); if the number of experts is more significant than two, the level of agreement between the experts in the group is indicated by the concordance coefficient.

The set of expert ratings is a matrix E =‖e_{ij} ‖ (i = 1,..., m; j = l, ..., r), where m is the number of indicators to be compared, and r is the number of experts involved in the study (Podviezko & Podvezko, 2014). Each j-th expert evaluates each i-th indicator. Only ranking the experts' indicators is suitable for calculating the dispersion concordance coefficient. Suppose the experts assess the indicators differently. In that case, they should be pre-ranked, i.e. a ranking procedure should be carried out so that the most critical indicator is given a rank of one, the second most important one a rank of two, etc., and the last most important one a rank of m; where m is the number of indicators being compared.

As mentioned above, in the first part of the survey, the experts rank the aspects of the evaluation of the measures presented in terms of their impact in the context of the creation of social utility by assigning a number between 1 and 3, respectively one being the most influential and three being the least influential, in which case a ranking procedure is necessary and is carried out by assigning the opposite of (5.1) to the respective evaluation using the following equation:

$$e_{ij} = (e_{max} + 1) - e_{ijS} \tag{5.1}$$

here e_{ij} is the post-ranking score, $e_{\max}$ is the maximum score (in this case it is 3), e_{ijS} is the original score.

The re-ranking procedure produces re-ranked values that satisfy the requirements for calculating the variance concordance coefficient as defined by Kendall. The calculation is based on the sum of the

ranks e_i of each *i*-th indicator across all the experts (Eq. 5.2), i.e. the deviation of the values e_i from the mean rank $\bar{e}$ (Eq. 5.4) the sum of the squares *S (analogy of variance*, Eq. 5.3), namely as following:

$$e_i = \sum_{j=1}^{r} e_{ij}. \ (i = 1, \dots, m) \tag{5.2}$$

$$S = \sum_{i=1}^{m} (e_i - \bar{e})^2. \tag{5.3}$$

$$\bar{e} = \frac{\sum_{i=1}^{m} e_i}{m} = \frac{\sum_{i=1}^{m} \sum_{j=1}^{r} e_{ij}}{m}. \tag{5.4}$$

It is theoretically possible that all the experts' assessments would be identical, in which case the experts' opinions could be considered maximally consistent S_{max} as to the following equation:

$$S_{max} = \frac{r^2 m(m^2-1)}{12}. \tag{5.5}$$

The latter is ideal in the case of consistency of the experts' opinions. If none of the assessments agree, the value of *S* would be zero. Suppose *S* is the sum of squares calculated using Equation 3. The concordance coefficient W in the absence of correlated ranks is defined by the ratio of the sum of squares of the mean rank *S* to the maximum concordant expert opinion S_{max} as to the 6th equation, namely as follows (Eq. 5.6):

$$W = \frac{12S}{r^2 m(m^2-1)} = \frac{S}{S_{max}}. \tag{5.6}$$

If the experts agree, the value of the concordance coefficient *W* tends to unity $W \rightarrow 1$; if they differ, the value of *W* tends to zero $W \rightarrow 0$. Kendall has shown that if the number of indicators *m> is* 7, the significance of the concordance coefficient can be determined using χ^2 Pearson's criterion (Podviezko & Podvezko, 2014). However, the emerging concept of social utility assessment of EU business measures only foresees the assessment of three key indicators. Hence, an

additional study on the concordance of experts' opinions is unnecessary. The calculated ratio (Eq. 5.6) can be considered a reliable measure of the level of concordance of views and the determination of the weights of indicators.

In the weighting, as in the calculation of the agreement between opinions, the results of the experts' assessments are marked e_{ij} and placed in the matrix E =$\|e_{ij}\|$ (i = 1,..., m; j = l, ..., r), where m is the number of indicators to be compared, and r is the number of experts participating in the study. When calculating the variance-covariance, the experts' scores had to go through a ranking procedure (Eq. 5.1), and when calculating the weights, the results had to be rearranged again. The purpose of the rearrangement is to assign the weights in descending order of rank. In this way, the best rank (first) would be assigned the highest value. A linear transformation of the weights gives the most accurate result (Liao et al., 2024). In this case, the weights of the indicators can be calculated according to the following equation:

$$\omega_i = \frac{\sum_{j=1}^{r}(m+1-e_{ij})}{\sum_{i=1}^{m}\sum_{j=1}^{r}(m+1-e_{ij})}. \quad (5.7)$$

By rearranging the weights of both the task and evaluation dimension levels and adding the evaluation results, we obtain weights for the indicators and the tasks, with the highest weight reflecting the most influential indicator and vice versa.

In a further stage of the expert questionnaire, experts are asked to rate the extent to which each measure, without diversifying between specific objectives, generates social utility in the context of the defined aspects of the evaluation on a scale of 1 to 5, with one being the least contributing to the generation of social utility, and 5 being the most contributing to the generation of social utility (an example of how to assess the measure's objectives in Table 5.7).

It should be noted that the survey does not use the names of specific measures but rather the objectives of the measures, the activities supported, and the selection criteria for projects, extracted from the projects' financing documents and structured to simplify the experts' work and contribute to a more accurate survey result.

Once the weights have been determined, the chosen multi-criteria method can be applied, and the TOPSIS method has been selected in the concept to process the collected data. TOPSIS *(Technique for Order Preference by Similarity to an Ideal Solution) is a multi-criteria method* with deep theoretical and practical meaning (Kaklauskas et al., 2017; Wu et al., 2023).

Table 5.7

Sample starting matrix for expert assessments

Objectives of the measure	**Evaluation scores**		
	Expert *m*	Expert *n*	Expert *r*
1. To provide micro, small and medium-sized enterprises (hereinafter referred to as SMEs) with the necessary information, advisory, methodological and other support on export issues, the search for potential markets and international trade, thereby promoting export growth and the competitiveness of enterprises	4	...	$r_{1,j}$
2. Encourage the internationalisation of enterprises by providing support for the certification of products planned for export, which would help to create a positive image on international markets that Lithuanian enterprises provide quality products that meet international standards.	5	...	$r_{2,j}$
3. Encourage micro, small and medium-sized enterprises (SMEs) to focus as much as possible on finding new foreign markets and expanding existing markets.	3	...	$r_{3,j}$
...	...	...	...
Objective *i of* the measure	$r_{i,1}$	...	r_{ij}

Source: compiled by author

The main principle of this method is to select the one with the lowest distance from the best options and the highest distance from the worst options among the compared objects. The technique can be applied to maximising indicators (whose best values are maximal) and minimising indicators (whose best values are minimal), i.e. there is no need for a preliminary transformation of minimising indicators into maximising ones. Still, minimising indicators should be included in

the concept. The TOPSIS approach is widespread and often used in practice. The TOPSIS method normalises and uses the distance between two points in the evaluation criteria. Due to the hierarchical evaluation system, the TOPSIS method must be applied at each hierarchical level, thus weighing the evaluation aspects of the measures and the tasks.

The TOPSIS method uses vector normalisation, namely as follows (Eq. 5.8):

$$\tilde{r}_{ij} = \frac{r_{ij}}{\sqrt{\sum_{j=1}^{n} r_{ij}^2}}. \quad (5.8)$$

here r_{ij} - *the j-th* expert*'s* assessment of the *ith* alternative, (*i =1*, ..., *m; j =1*,..., *n*), $\tilde{r}_{ij}$ - the normalised value of the *TOPSIS* method *for the i-th* indicator for *the j-th* object.

The best solution (option) is then pre-selected V^*, i.*e.* find the maximum value of each indicator to be maximised (multiplied by the respective weights ω_i) and the minimum value of the minimising indicator. The following equation is used:

$$V^* = \{V_1^*, V_2^*, \ldots, V_m^*\} = \left\{\left(max_j \omega_i \tilde{r}_{ij} / i \in I_1\right), \left(min_j \omega_i \tilde{r}_{ij} / i \in I_2\right)\right\} \quad (5.9)$$

The worst solution (option) is also calculated V^-, namely as follows (Eq. 5.10):

$$V^- = \{V_1^-, V_2^-, \ldots, V_m^-\} = \left\{\left(min_j \omega_i \tilde{r}_{ij} / i \in I_1\right), \left(max_j \omega_i \tilde{r}_{ij} / i \in I_2\right)\right\} \quad (5.10)$$

Accordingly, I_1 - the set of indices to be maximised, I_2 - the set of indices for the indicators to be minimised, ω_i - the weight of *the i-th* indicator. The essence of the method, the distances to the best and to the worst solutions, i.e. the total distance for each of the comparators D_j^* to the best solutions (variants) V^* (Eq. 5.11) and the distance D_j^- to the worst solutions V^- (Eq. 5.12). The evaluation criteria (distances) include the significance (weight) of the relevant indicators $\omega_i$that affects the results. These values were calculated in the previous step. Equations 5.11 & 5.12 are following:

$$D_j^* = \sqrt{\sum_{i=1}^{m}(\omega_i \tilde{r}_{ij} - V_i^*)^2}. \quad (5.11)$$

$$D_j^- = \sqrt{\sum_{i=1}^{m}(\omega_i \tilde{r}_{ij} - V_i^-)^2}. \quad (5.12)$$

The main criterion for the *TOPSIS* method C_j^* is calculated as the ratio of the distance to the worst solution to the sum of the distances between the best and worst alternatives, with the best solution (variant) being the largest C_j^* value. The following equation is used:

$$C_j^* = \frac{D_j^-}{D_j^* + D_j^-}, (j = 1, \dots, n) \left(0 \le C_j^* \le 1\right). \quad (5.13)$$

Once the assessment at the lowest hierarchical level has been carried out, the procedure is repeated at a higher level until the result is obtained. The results of the method are interpreted in terms of the locations of the measures, i.e. the social utility generated by each measure, as calculated using the TOPSIS method. The assessment would identify the highest and lowest social utility-generating measures in the respective funding target and can be followed by a further analysis of the specificity of the measures to identify the core aspects that contribute to or, on the contrary, constrain the generation of social utility. This analysis could then be applied to other newly designed business measures or new calls for proposals to maximise the creation of social utility as a positive spill-over effect of business finance measures.

4. The results of the application of the applied methodology

To test the practical performance of the proposed concept of measuring the social utility of EU investment-financed business measures, an experimental setting is designed, consisting of accurate data on EU investment-financed business instruments and expert evaluations. To maintain a hierarchical structure and not to extend the experimental environment, the test is carried out on the instruments of two specific investment objectives (3.1.1 “Increase the level of entrepreneurship” and 3.3.2 “Increase SME investment in eco-

innovation and other resource-efficient technologies" (Savickas, 2021), Table 5.8).

Table 5.8

Specific investment objectives

Specific task	Project selection criteria
3.1.1 "Increase the level of entrepreneurship"	1. The project complies with the provisions of the Lithuanian Entrepreneurship Action Plan 2021-2027. 2. The applicant's experience in providing high quality advice on entrepreneurship promotion. 3. The final beneficiaries are SMEs that have been active for no more than five years prior to the submission of the application and belong to a specific target group (young people, women, disabled people, elderly people, expatriates, family businesses). 4. At least 50% of the consultations will be provided to SME's conducting business activities in the territory of the Republic of Lithuania, except for the municipalities of Vilnius, Kaunas and Klaipėda cities. 5. The applicant has had permanent establishments (representative offices) in at least five Lithuanian counties within the last 6 months prior to the submission of the application, which are suitable for the provision of high-quality regional advice. 6. The volume of consultancy services provided by the applicant on entrepreneurship promotion issues in the national region. 7. The applicant's experience in advising SMEs in at least one of the target groups (young people, women, people with disabilities, elderly people, expatriates, family businesses) for at least five years prior to the submission of the application.
3.3.2 "Increase SME investment in eco-innovation and other resource-efficient technologies"	1. The project contributes to the implementation of Objective 2 "To modernise, integrate and develop industry", Task 2 "To encourage enterprises to use raw materials and energy more efficiently" of the Programme for the Promotion of Investment and Industrial Development 2021-2027. 2. The applicant is an active (registered in the Register of Legal Entities) SME which has had insured persons every month for at least 6 months prior to the month of application.

Source: compiled by author

In the context being considered, five experts have been specifically selected to provide their assessments. These assessments have been deliberately randomised to prevent any bias and maintain the integrity of the opinions. The preliminary evaluation has verified that the five experts were chosen based on predetermined competence and experience criteria. During the initial phase, these experts will assign ratings to assess the degree to which each task contributes to the creation of social utility, as well as the impact of each evaluation criterion on the generation of social utility at the tool level.

The calculated Kendall concordance coefficient (Eq. 5.6) showed that the opinions can be considered concordant, with a coefficient of 0.64 for the specific task and 0.48 for the measure evaluation criteria (Figure 5.9).

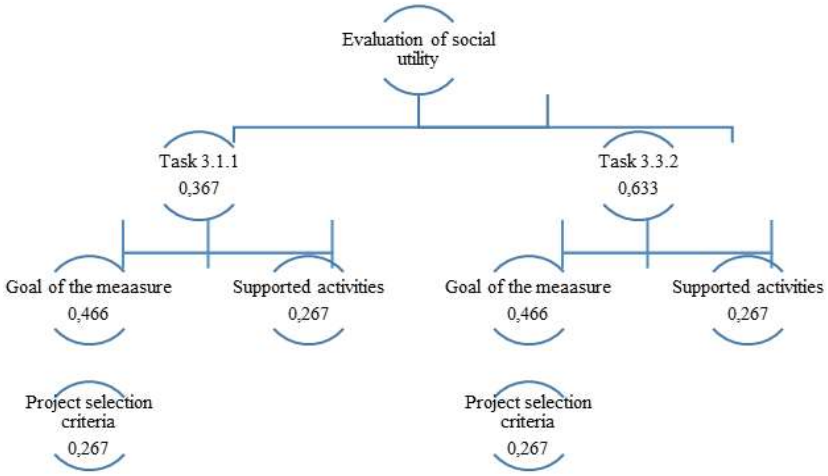


Figure 5.9 Weights resulted per tasks under consideration for social utility evaluation

Source: compiled by author

The calculated aggregated weights (Eq. 5.7) of the targets and measures show that the measures under target 3.3.2, “Increase SME investment in eco-innovation and other resource-efficient technologies” (Savickas, 2021), are more relevant in social utility creation. In contrast, the measures under measure 3.3.2, “Increase

SME investment in eco-innovation and other resource-efficient technologies" (Savickas, 2021), have the most significant influence on social utility creation in the measure level assessment due to the formulation of the measure's objective, the activities to be supported further, and the selection criteria for the selection of projects. Once the weights have been determined, the data can be analysed using the TOPSIS method procedure described in section 3. Table 5.9 presents an initial starting table of the experts' assessments.

Table 5.9

The experts' assessments

Measure\Expert	E1	E2	E3	E4	E5
Business consultant LT. Objective of the measure	2	3	2	3	4
Business consultant LT. Supported activities	3	3	3	4	3
Business consultant LT. Project selection criteria	2	1	3	4	1
Entrepreneurship LT. Objective of the measure	1	3	2	1	2
Entrepreneurship LT. Supported activities	1	2	2	2	1
Entrepreneurship LT. Project selection criteria	3	4	3	3	3
Eco consultant LT. Objective of the measure	5	4	4	5	4
Eco consultant LT. Supported activities	4	5	4	5	5
Eco consultant LT. Project selection criteria	3	3	4	4	3
Eco-innovation LT. Objective of the measure	4	3	3	3	3
Eco-innovation LT. Supported activities	3	4	3	3	3
Eco-innovation LT. Project selection criteria	4	4	5	5	5
Eco-innovation LT+. Objective of the measure	3	4	3	3	2
Eco-innovation LT+. Supported activities	3	3	3	4	4
Eco-innovation LT+. Project selection criteria	3	3	3	2	4

Source: compiled by author

After vector normalisation (Eq. 5.8), the best and worst values of (Eq. 5.9 & 5.1) can be calculated from Table 5.10.

With the best and worst values calculated, the distances to the best and worst values are then calculated (Eq. 5.11 & 5.12) for each benchmark expert solution. The results accordingly are presented in Table 5.11.

Table 5.10

The best and worst values

Measure\Expert	E1	E2	E3	E4	E5
Business consultant LT. Objective of the measure	0,0064	0,0081	0,0059	0,0072	0,0110
Business consultant LT. Supported activities	0,0055	0,0046	0,0051	0,0055	0,0047
Business consultant LT. Project selection criteria	0,0037	0,0015	0,0051	0,0055	0,0016
Entrepreneurship LT. Objective of the measure	0,0032	0,0081	0,0059	0,0024	0,0055
Entrepreneurship LT. Supported activities	0,0018	0,0031	0,0034	0,0028	0,0016
Entrepreneurship LT. Project selection criteria	0,0055	0,0062	0,0051	0,0042	0,0047
Eco Consultant LT. Objective of the measure	0,0160	0,0108	0,0119	0,0121	0,0110
Eco Consultant LT. Supported activities	0,0073	0,0077	0,0068	0,0069	0,0079
Eco Consultant LT. Project selection criteria	0,0055	0,0046	0,0068	0,0055	0,0047
Eco-innovation LT. Objective of the measure	0,0128	0,0081	0,0089	0,0072	0,0083
Eco-innovation LT. Supported activities	0,0055	0,0062	0,0051	0,0042	0,0047
Eco-innovation LT. Project selection criteria	0,0073	0,0062	0,0085	0,0069	0,0079
Eco-innovation LT+. Objective of the measure	0,0096	0,0108	0,0089	0,0072	0,0055
Eco-innovation LT+. Supported activities	0,0055	0,0046	0,0051	0,0055	0,0063
Eco-innovation LT+. Project selection criteria	0,0055	0,0046	0,0051	0,0028	0,0063
V^*	**0,0160**	**0,0108**	**0,0119**	**0,0121**	**0,0110**
V^-	**0,0018**	**0,0015**	**0,0034**	**0,0024**	**0,0016**

Source: compiled by author

Table 5.11

Distances to the best and worst values

Indicator\ expert	E1	E2	E3	E4	E5
D*	0,0383	0,0197	0,0223	0,0262	0,0217
D-	0,0234	0,0210	0,0146	0,0158	0,0205

Source: compiled by author

Once the distances have been calculated, the final TOPSIS method score can be calculated, i.e., which expert's solution is closest to the correct one (Eq. 5.13). The results are presented in Table 5.12.

Table 5.12

Final ranking

Indicator\ expert	E1	E2	E3	E4	E5
C*	0,3791	0,5155	0,3948	0,3759	0,4859
Rank	4	1	3	5	2

Source: compiled by author

The aforementioned results indicate the optimal solution, exemplifying the highest performance according to the established criteria. This selection is justified, as the criteria emphasize corporate environmental education, thereby highlighting its pronounced social utility. Given the experimental nature of this scenario aimed at testing the model's performance, the scientific validity of the results may necessitate further exploration and testing of heterogeneous tasks across various projects or investment programs within different economic sectors. In this respect, the upcoming chapter presents a financing model for generating social benefits, which can be developed based on the aforementioned calculations. Consequently, due consideration must be given to the externalities associated with each project and program per sector.

5. Discussion: a potential financing model that generates social benefits

Considering the findings of the research presented in previous chapters to identify the manifestations of social benefits in the business measures financed by EU investments, it has been observed that the business measures are programmed in a non-systematic way;

that is, there are no connections between the different measures, which cause them to act as separate means. The simplified process of project evaluation and selection is represented by Figure 5.10, which shows that the project evaluation process is often formalised and only considers the factual data provided by the applicant.

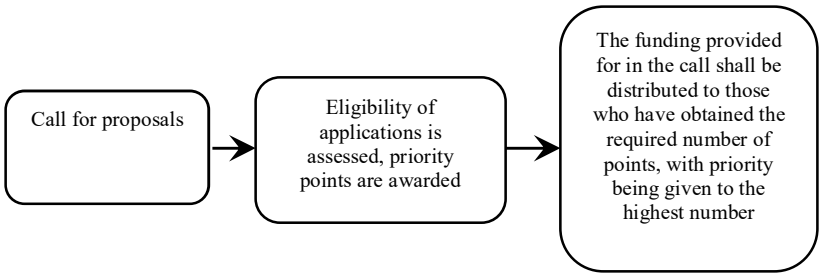


Figure 5.10 Simplified project evaluation and selection process
Source: compiled by author

Although the measures successfully work towards the priority objectives and the monitoring indicators set are achievable, the unpopularity of individual measures among applicants implies that companies are more interested in undertaking large-scale projects than in utilising measures with lower funding that aim to create social benefits. It has also been noted that the assessment of the adequacy of applications is often limited to evaluating compliance with the supported line of activity and other horizontal principles, yet no references to the obligation to generate social benefits have been observed. Therefore, it has been decided to enhance the project evaluation and selection process by incorporating elements of social benefits through the chain financing model (Figure 5.11).

The generation of social benefits through the measures is determined in accordance with the concept of social benefits as delineated in scientific literature and the criteria for evaluation. The analysis has identified the measures by which social benefits are generated; however, the ambiguity associated with quantifying the extent of social benefits has constrained the capacity to assess the degree of generation and to compare the measures under consideration. To mitigate this ambiguity, specialists have been engaged to quantify the range of social benefits, and their evaluations

have been synthesised employing multi-criteria assessment, possessing specific logical interpretations and complexities, as outlined in the preceding chapter.

Based on the expert assessment, the process of evaluating and selecting projects (Figure 5.11) is being improved, which includes a provision for a measure to generate social benefits.

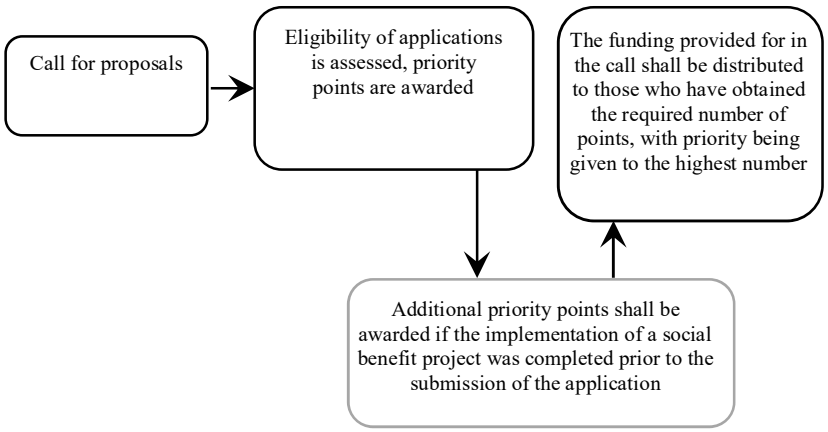


Figure 5.11 Improved project evaluation and selection process
Source: compiled by author

In the baseline scenario, the applicant was awarded points for the benefits and quality of the project. Therefore, the competitiveness of the application concerning the allocated funding depended solely on the compliance of this application with specific criteria and did not rely on the applicant's initiative to create benefits for society if such a criterion was not raised. In the case of an enhanced process, if the applicant has successfully completed the implementation of a project under a social benefit measure before applying for a project that creates social benefits, he or she is awarded additional points, thus increasing the competitiveness of the application for an infrastructure project compared to other applications. An application with additional points in the variable line of scores in the application evaluation report will rank higher than other applications and will have a greater chance of receiving funding, implying an incentive effect for businesses to voluntarily contribute to the creation of social benefits while pursuing their own interests. Such an improvement in

the project evaluation and selection process establishes conditions for the creation of the above-mentioned funding chain, i.e., by including provisions for additional points for implemented projects that create social benefits in the project selection criteria, connections between individual measures are formed.

When creating the financing chain, it is necessary to establish an additional priority selection criterion for the social benefit-generating measure, which has been defined during the analysis and expert assessment of the legislation's content, in the description of the financing conditions for the projects related to this measure, and in the selection criteria. Consequently, an improved social benefit-generating funding chain can be constructed (Figure 5.12).

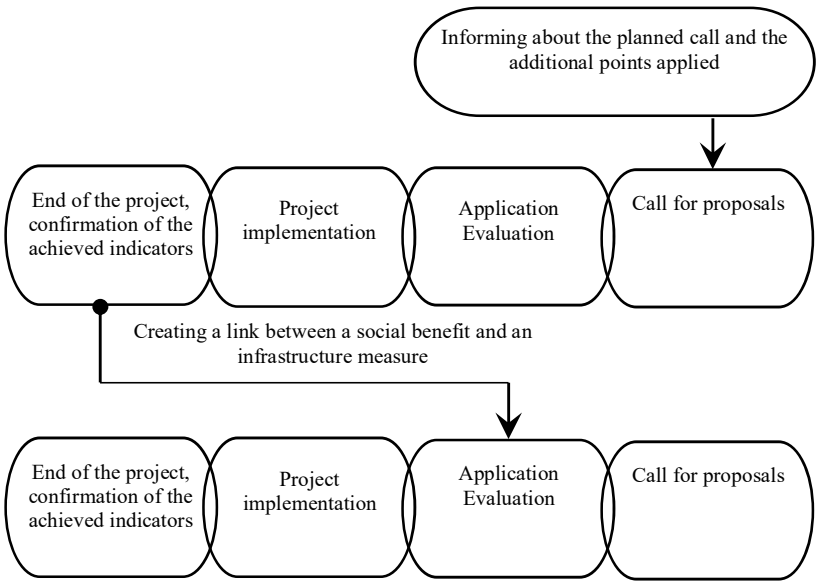


Figure 5.12 A social benefit-generating funding chain
Source: compiled by author

The revised selection criteria must be agreed upon with the respective institution, social and economic partners, and approved by the Monitoring Committee. For the effective functioning of the model, it is particularly important to properly prepare the invitation plan. The interval between calls for proposals for these measures

should not be shorter than the maximum deadline for the implementation of projects for the first (social benefit-generating) measure. However, if the call's amount does not encompass the full measure, the calls may be divided and published earlier since some projects implement activities more quickly than the defined maximum deadline. It is important to note that the use of chain financing also promotes the implementation of project activities in line with the planned schedule, as delays will hinder the execution of subsequent measures.

Applicants who express interest in the infrastructure measure will await the drafts pertaining to the financing conditions of this initiative. However, the coordination of projects among institutions requires a significant amount of time, resulting in the possibility that applicants may remain unaware of the allocation of additional points for initiatives that generate social benefits following the commencement of this measure. Consequently, there exists a pressing need to disseminate information to potential applicants at this stage. In the context of policymaking for these measures, it is imperative to anticipate all possible interconnections between various initiatives and to communicate these details to applicants, even in instances where the financing documentation for subsequent measures is still under preparation. This proactive approach will ensure that applicants align their proposed activities appropriately prior to the submission of applications for infrastructure projects, thereby facilitating the implementation of projects that contribute to the generation of social benefits.

In order to assess the actual impact of the funding chain on the generation of social benefits, it is imperative to utilise the data from these calls and to simulate the impact that would have been realised if the chain financing model had been employed prior to the implementation of the policy measures.

6. Conclusions

The scientific literature underscores the critical importance of incorporating expert judgment when conducting social utility research utilising multi-criteria methods, regardless of the specific subject matter. Previous research has highlighted the significance of stratifying the system under assessment into hierarchical levels based on standardised features to enhance the precision of expert evaluation.

This approach is imperative due to the multitude of criteria necessary for evaluating comparative measures within the pertinent field.

In the initial conceptualisation phase, the EU investment instruments are systematically categorised to align with the specific objectives of the Action Programme. Subsequently, each instrument undergoes a comprehensive evaluation against the principal criteria outlined in the FFCD. This process involves engaging experts to determine the materiality weights of the evaluation objects at each hierarchical level. These determinations are integral to assessing the consistency of perspectives and evaluating the scores obtained in the expert survey for the evaluation criteria of each measure. The data gathered through this process are then carefully analysed using the TOPSIS method to identify the expert who has proposed the most suitable solution. The combined scores of the selected expert can then be thoroughly examined at the level of the specific measure outlined in the evaluation results, allowing for a detailed understanding of the fundamental aspects contributing to the establishment of social utility through the measure. These identified aspects can be extrapolated to other business measures without biasing business interests, allowing for a positive impact of EU investments on the generation of social utility.

Consequently, the methodology employed to assess the utilisation of public funds in Lithuania can be extended to evaluate the social utility arising from both private and public investments across various economic sectors globally. Furthermore, the findings suggest that employing multiple multi-criteria approaches offers the most robust representation of the subject matter. Given the adaptability of the developed evaluation concept, supplementary research is recommended to assess the advantages and disadvantages of various methods and to determine the most appropriate combination of techniques. It is estimated that the synergistic application of these techniques will yield more accurate results.

References:

1. *Acemoglu, D., & Restrepo, P. (2018). The race between man and machine: Implications of technology for growth, factor shares, and employment. American Economic Review, 108(6), 1488–1542. https://doi.org/10.1257/AER.20160696*
2. *Acemoglu, D., & Restrepo, P. (2019). Automation and new tasks: How*

technology displaces and reinstates labor. Journal of Economic Perspectives, 33(2), 3–30. https://doi.org/10.1257/JEP.33.2.3

3. *Azman, A. I., Zaibidi, N. Z., Nawawi, M. K. M., Ismail, M. H., & Khalid, R. (2023). The application of subjective weight in multi-criteria decision making in mathematics area: A bibliometric analysis. AIP Conference Proceedings, 2896(1). https://doi.org/10.1063/5.0179268/2921969*
4. *Bahloul Zekkari, K. (2024). Asset bubble and growth: Elastic labor supply with fiscal policy. Journal of Mathematical Economics, 110, 102930. https://doi.org/10.1016/J.JMATECO.2023.102930*
5. *Bennett, D. L. (2021). Local institutional heterogeneity & firm dynamism: Decomposing the metropolitan economic freedom index. Small Business Economics, 57(1), 493–511. https://doi.org/10.1007/S11187-020-00322-2*
6. *Bennett, D. L., Wagner, G., & Araki, M. (2024). Labor market reform as an external enabler of high-growth entrepreneurship: A multi-level institutional contingency perspective. Journal of Business Venturing, 39(6), 106428. https://doi.org/10.1016/J.JBUSVENT.2024.106428*
7. *Bo, X., & Yi, B. (2024). Sustainable development and supply chain management in renewable-based community based self-sufficient utility: an analytical review of social and environmental impacts and trade-offs in digital twin. Sustainable Energy Technologies and Assessments, 65, 103734. https://doi.org/10.1016/J.SETA.2024.103734*
8. *Chen, X., He, J., & Wang, X. (2024). Effects of product substitutability and power relationships on performance in triadic supply chains. Transportation Research Part E: Logistics and Transportation Review, 183, 103422. https://doi.org/10.1016/J.TRE.2024.103422*
9. *Costa, C. A. B. E., Vieira, A. C. L., Nóbrega, M., Quintino, A., Oliveira, M. D., & Costa, J. B. E. (2019). Collaborative Value Modelling in corporate contexts with MACBETH. Procedia Computer Science, 162, 786–794. https://doi.org/10.1016/j.procs.2019.12.051*
10. *Curt, C., Di Maiolo, P., Schleyer-Lindenmann, A., Tricot, A., Arnaud, E., Curt, T., Par Es, N., & Taillandier, F. (2022). Assessing the environmental and social co-benefits and disbenefits of natural risk management measures. https://doi.org/10.1016/j.heliyon.2022.e12465*
11. *Dabush, I., Cohen, C., Pearlmutter, D., Schwartz, M., & Halfon, E. (2023). Economic and social utility of installing photovoltaic systems on affordable-housing rooftops: A model based on the game-theory approach. Building and Environment, 228, 109835. https://doi.org/10.1016/J.BUILDENV.2022.109835*
12. *Gupta, P., Mehlawat, M. K., Aggarwal, U., & Khan, A. Z. (2022). An optimization model for a sustainable and socially beneficial four-stage*

supply chain. Information Sciences, 594, 371–399. https://doi.org/10.1016/J.INS.2022.02.032

13. *International Public Sector Accounting Standards Board (IPSASB) 2016. Social Benefits. Exposure Draft. Available online: https://www.ifac.org/system/files/publications/files/ED-63-Social-Benefits.pdf (accessed on 16 April 2025)*
14. *Kaklauskas, A., Zavadskas, E. K., Radzeviciene, A., Ubarte, I., Podviezko, A., Podvezko, V., Kuzminske, A., Banaitis, A., Binkyte, A., & Bucinskas, V. (2017). Quality of city life multiple criteria analysis. https://doi.org/10.1016/j.cities.2017.08.002*
15. *Kosmopoulou, G., & Press, R. (2022). Supply side effects of infrastructure spending. Economics Letters, 217, 110642. https://doi.org/10.1016/J.ECONLET.2022.110642*
16. *Kumar Behera, R., Kumar Bala, P., Rana, N. P., & Irani, Z. (2023). Responsible natural language processing: A principlist framework for social benefits. Technological Forecasting & Social Change, 188, 122306. https://doi.org/10.1016/j.techfore.2022.122306*
17. *Li, D., Chen, H., Chi, E., Hui, M., Yang, H., & Li, Q. (2014). A methodology for ex-post assessment of social impacts of an affordable housing project. https://doi.org/10.1016/j.habitatint.2014.01.009*
18. *Liao, H., Liu, F., Xiao, Y., Wu, Z., & Kazimieras Zavadskas, E. (2024). A survey on Z-number-based decision analysis methods and applications: What's going on and how to go further? Information Sciences, 663, 120234. https://doi.org/10.1016/J.INS.2024.120234*
19. *Lithuania State Data Agency. (2023). Labour Market in Lithuania. 2023 edition. Lithuania State Data Agency, 51.*
20. *Maas, P., & Rousseau, S. (2024). A social cost-benefit analysis of shellfish beds on the Dutch coast as a nature-based measure against climate change. https://doi.org/10.1016/j.marpol.2024.106097*
21. *Munier, N., & Hontoria, E. (2021). Uses and Limitations of the AHP Method. https://doi.org/10.1007/978-3-030-60392-2*
22. *Murakami, H. (2023). On growth cycles in a stochastic post-Keynesian model. Communications in Nonlinear Science and Numerical Simulation, 118, 106995. https://doi.org/10.1016/J.CNSNS.2022.106995*
23. *Ozdemir, S. (2024). Unveiling environmental resilience: A data-driven multi-criteria decision-making approach. https://doi.org/10.1016/j.eiar.2024.107607*
24. *Podviezko, A., & Podvezko, V. (2014). Absolute and Relative Evaluation of Socio-Economic Objects Based on Multiple Criteria Decision Making Methods. Engineering Economics , 25(5), 522–529. https://doi.org/10.5755/J01.EE.25.5.6624*

25. *Rada, C., Tavani, D., von Arnim, R., & Zamparelli, L. (2023a). Classical and Keynesian models of inequality and stagnation. Journal of Economic Behavior & Organization, 211, 442–461. https://doi.org/10.1016/J.JEBO.2023.05.015*
26. *Rada, C., Tavani, D., von Arnim, R., & Zamparelli, L. (2023b). Classical and Keynesian models of inequality and stagnation. Journal of Economic Behavior & Organization, 211, 442–461. https://doi.org/10.1016/J.JEBO.2023.05.015*
27. *Savickas, L. (2021). "Lietuva 2030" CONCEPT OF COMPREHENSIVE PLAN OF THE TERRITORY: spatial development aims and functional priorities for the use of territories.*
28. *Su, R., & Morsky, B. (2024). Relational utility and social norms in games. Mathematical Social Sciences, 127, 54–61. https://doi.org/10.1016/J.MATHSOCSCI.2023.12.001*
29. *Thomas, P., Operandi, H. M., Velasquez, M., & Hester, P. T. (2013). An analysis of multi-criteria decision making methods. In International Journal of Operations Research (Vol. 10, Issue 2). https://www.researchgate.net/publication/275960103*
30. *Vieira, A. C. L., Oliveira, M. D., & Bana e Costa, C. A. (2020). Enhancing knowledge construction processes within multicriteria decision analysis: The Collaborative Value Modelling framework. Omega (United Kingdom), 94. https://doi.org/10.1016/j.omega.2019.03.005*
31. *Veinhardt, J., & Gulbovaitė, E. (2016). Expert Evaluation of Diagnostic Instrument for Personal and Organizational Value Congruence. Journal of Business Ethics, 136(3), 481–501. https://doi.org/10.1007/S10551-014-2527-7/METRICS*
32. *Wang, H., & Huang, H.-J. (2024). Effects of high-speed rail on intercity travels, utility and social welfare in urban agglomerations: A game-theoretic perspective. Transportation Research Part E: Logistics and Transportation Review, 192, 103800. https://doi.org/10.1016/J.TRE.2024.103800*
33. *Wu, X., Liao, H., Lev, B., & Zavadskas, E. K. (2023). A Multiple Criteria Decision-Making Method With Heterogeneous Linguistic Expressions. IEEE Transactions on Engineering Management, 70(5), 1857–1870. https://doi.org/10.1109/TEM.2021.3072590*

Leonid Taraniuk
ORCID: https://orcid.org/0000-0003-1842-7128
Dr., Professor, Professor of Department International Economic Relation
Sumy State University;
Vilnius Gediminas Technical University
Karina Taraniuk
ORCID: https://orcid.org/0000-0003-0785-5186
Ph.D., Assistant Professor, Senior Lecturer of Department of Management
Sumy State University
Renata Korsakiene
ORCID: https://orcid.org/0000-0002-4119-4521
Dr., Professor, Head of Department of Management
Vilnius Gediminas Technical University
Astrida Miceikienė
ORCID: https://orcid.org/0000-0003-1432-7971
Dr., Professor, Rector
Vytautas Magnus University
(Sumy, Ukraine; Vilnius, Kaunas, Lithuania)

TAX BURDEN ON SMALL BUSINESS ENTITIES (THE CASE OF LITHUANIA) AND THE OPPORTUNITIES FOR BENCHMARKING THE SYSTEM INTO THE NATIONAL ECONOMY UNDER THE CONDITIONS OF UKRAINE'S POST-WAR DEVELOPMENT

https://doi.org/10.5281/zenodo.15710104

Abstract
This scientific study includes a comparative analysis of the tax burden on business entities in European Union countries, using Lithuania as a case study, and explores the possibility of its implementation in Ukraine's wartime and post-war national economic system based on a benchmarking approach.
Proposals have been developed for the implementation of an effective tax mechanism for small business entities, taking into account the experience of European Union countries.
Relevant conclusions of the scientific research have been drawn.

Keywords: *business entities, benchmarking, taxes and fees, EU countries, national economy.*

Introduction

In the context of the development of the productive forces of the European space, there arises a need to study the tools for filling the budgets of EU countries through the use of tax levers and the possibility of their implementation into Ukraine's national economic space by applying benchmarking technologies, which involve the adoption of successful practices from EU countries.

It is important to note that in the context of post-war development, the state requires additional sources of revenue for the national budget. One possible solution for budget replenishment through additional sources of taxation could be the implementation of effective tax mechanisms from EU countries.

It should also be emphasized that the Russian invasion and the unprecedented destruction of Ukraine's industrial and production complexes have led to a decline in domestic demand and the shadowing of the economy. Under such conditions, small business can become a driving force for development and recovery.

A key motivation for legal business activity among entrepreneurs could be the implementation of best practices from countries with similar development experiences or those that have undergone tax reforms in a comparable historical context.

The purpose of this article is to analyze the Lithuanian model of small business taxation and to identify the opportunities for its benchmarking in the context of Ukraine's post-war development and economic recovery.

Materials and Methods

The informational basis of this scientific research is the analysis of taxes and fees applied to small business entities (self-employed individuals) in the service sector in Lithuania, as well as a projected tax burden for similar business entities in the corresponding sector of Ukraine's economy.

The research methods used by the authors include:

– the method of abstract construction – for establishing the prerequisites for implementing tax burden benchmarking from EU

countries into the national economic system;

– the method of comparative economic analysis – for comparing the tax burden on business entities in Lithuania and Ukraine;

– the systems method – for developing a set of proposals to optimize taxes for business entities in Ukraine;

– the benchmarking method – for studying advanced European practices in the taxation of business entities;

– the synthesis method – for formulating the conclusions of the scientific research.

Results and Discussion

The tax burden represents the ratio of the amount of tax liabilities to the income and profit of taxpayers. Excessive tax burden can become a barrier to development for small businesses.

The implementation of a flexible and effective tax policy can serve as a tool for establishing a balance between fiscal obligations and incentives for entrepreneurial activity.

Benchmarking can be an effective tool for analyzing best practices in efficient tax policy, using EU countries as examples, with the aim of adapting them to Ukraine's tax system.

When forming a benchmarking approach to the tax burden on business entities from EU countries for Ukraine, it is important to identify the prerequisites for the necessity of implementing successful tax mechanism practices.

The following prerequisites should be noted:

– the formation of additional sources of revenue for the state budget of Ukraine in the context of the country's post-war development;

– the search for optimal models for budget replenishment through tax revenues;

– the need to apply advanced foreign practices of tax mechanisms for collecting funds from taxpayers – business entities – to the national budget.

Let us move on to analyzing the current tax burden on business entities (self-employed individuals) in EU countries, using Lithuania as a case study.

Like Ukraine, Lithuania has gone through a difficult path toward self-identifiable economic development following the attainment of

independence.

It is worth noting that Lithuania's system is among the most favorable for new businesses. However, some points need clarification.

Firstly, all taxes in Lithuania are divided into two classes: A and B (How much, 2025).

Class A – tax rates apply to those who are employed or cases where a legal entity pays taxes. Class B - tax rates apply to the self-employed population (How much, 2025).

Taxation features in Lithuania. Lithuania applies a corporate income tax of 5% for small businesses and 15 % for general-category enterprises. The VAT (Value Added Tax) has a standard rate of 21 %. However, small enterprises are granted a benefit – a 0% VAT rate during their first year of operation (How much, 2025).

Thanks to the availability of an electronic reporting cabinet and a minimal number of inspections, Lithuania has achieved a high level of business de-shadowing and stable GDP growth of up to 30% (How much, 2025).

Contributions are paid on 90% of the taxable income of a business entity (excluding SSD (State Social Insurance) and PSD (Compulsory Health Insurance) contributions).

SSD (State Social Insurance) contribution rates:

– 12.52 % if you do not contribute to an additional pension;

– 15.52 % if you are accumulating an additional pension and contribute an additional 3 % (How much, 2025).

The maximum income subject to SSD contributions is 90 681.84 € per year (equivalent to 43 times the average monthly wage (VDU) from the previous year) (How much, 2025).

PSD (Compulsory Health Insurance) contributions are calculated based on the MMA (minimum monthly wage), which from January 1, 2025, is 1038 €. The monthly PSD payment is calculated as (6.98%×1038 €), which equals 72.45 € (How much, 2025).

This payment must be made no later than the last day of each month. After the end of the calendar year, by May 2 at the latest, the difference between the paid and owed PSD contributions must be settled. The maximum annual PSD contribution is 6 329.59 € (How much, 2025).

Payment options:

– monthly payments: SSD and PSD contributions must be paid monthly by the last day of the current month. The SAV6 form must be submitted through the taxpayer's personal account on the SODRA system for the reporting period;

– annual payment: if SSD contributions are based on income earned in the previous year, they must be paid no later than May 2 of the current year (How much, 2025).

It is also necessary to take into account the personal income tax, which amounts to 5% of taxable profit (the method of profit calculation can be freely chosen – either by applying a coefficient of 0.3 or using the income minus expenses method) (Individual activity, 2025).

Income tax must be paid by individuals who receive income and fall into the following categories:

– permanent residents of Lithuania;

– non-residents of Lithuania who pay income tax on earnings derived from sources located within Lithuania (Personal income, 2025).

To compare the tax system models of Lithuania and Ukraine, several benchmarking directions can be identified:

1. Differentiation of income tax rates depending on the size of the business.

2. Temporary tax exemption for newly established small business entities.

3. Digitalization of tax administration – reducing the role of human factors and manual inspections.

4. Predictability of fiscal policy – 3-5 year planning for small businesses as a guarantee of investment attractiveness.

Thus, for this purpose, the best cases of implementing Lithuania's tax support tools can be taken as examples.

In Lithuania today, two programs successfully passed testing: "Startuok" (Paskolos "Startuok", 2025) – tax support for newly established enterprises, and "Smart Taxation" (Koutsogeorgopoulou, 2025) – digitalization of accounting and transparent administration for small businesses. "Smart Taxation" – digitalization of accounting and transparent administration for small businesses (tax interaction between small businesses and the state) was implemented in Lithuania from 2016 to 2020.

The system provides:

– an electronic tax platform VMI EDS (similar to “Business”, but fully integrated with the state fiscal system);

– automatic generation of tax declarations based on bank statements and electronic receipts;

– API access for accounting software (1C, Finvalda, Rivilė, SAP, etc.);

– minimization of human contact with the tax service — all communication takes place online;

– a business risk-profile system: “reliable” companies are exempt from audits for 2–3 years (Koutsogeorgopoulou, 2025).

Results of the implementation of the “Smart Taxation” system in Lithuania:

– more than 90% of sole proprietors and small enterprises use the VMI EDS system;

– the average time to submit tax reports is less than 15 minutes;

– administrative burden on small businesses has decreased by 25–30%;

– increased trust in the tax system and reduced violations (Koutsogeorgopoulou, 2025).

More details about the “Startuok” program, which was launched by the initiative of the Lithuanian government in 2018.

The program package includes the following functionality:

– if an entrepreneur’s income in the first year of operation does not exceed 300 000 €, and the average number of employees is up to 10 people, a 0% profit tax rate is applied during the first year of operation;

– as long as the entrepreneur meets the criteria of a small business, a 5% tax rate is applied in subsequent years;

– Lithuanian entrepreneurs have access to business financing tools at the startup stage, such as microfinancing and grants;

– accelerated electronic registration – up to 1 day;

– unconditional experience in implementing a free advisory support service from the tax authorities regarding reporting (Paskolos “Startuok”, 2025).

According to monitoring results from 2018–2022, the program achieved the following indicators:

– a rapid 28% increase in registered small enterprises;

– more than 65% of companies remained on the market after two years;

– an increase in the number of enterprises moving out of the shadow economy (Koutsogeorgopoulou, 2025).

Let us move on to the study of tax mechanisms for business entities providing services in Ukraine. The country is moving towards the implementation of a simplified taxation system. However, the current state of Ukraine's tax system for small businesses is not as favorable compared to Lithuania, specifically:

– frequent changes in tax rates depending on the size of the business;

– frequent inspections, often unjustified or conducted outside the plan;

– fiscalization and reduction of benefits create difficult conditions for forecasting and strategic planning for entrepreneurs.

In addition to all the above, there are ongoing military actions led by Russia on Ukrainian territory. According to YC Market data, in 2024 more than 173,700 sole proprietors (FOPs) closed, and in 2023, 111,200 FOPs closed (Prasad, 2024).

It should be noted that at this stage of economic development, this issue is not fully regulated, as workers in the delivery and transportation sectors are, at best, employed under labor contracts where the company pays all taxes and fees, but in the worst case, such entrepreneurs do not pay taxes and fees, which creates a shadow economy and negatively affects the country's state budget revenues. At this stage, the government is drafting legislation to regulate the tax burden on business entities providing services in Ukraine.

The basis of this draft legislation is a bill on the implementation of international information exchange about income received through digital platforms (Uryad skhvalyv, 2025).

This draft law includes the following provisions. Types of taxable activities: rental of real estate, sale of goods, rental of vehicles, provision of personal services. The personal income tax rate is 18%, and the military tax is 5%. Taxes on one-time transactions are 10% (from sales up to 2,000 € per year); for 4 or more sales, the tax rate is 23%.

It should be noted that in the EU, if an entrepreneur carries out up to 30 transactions amounting to 2,000 € through e-commerce, such

entrepreneurs are exempt from income reporting in the EU.

As of May 2025, the State Tax Inspectorate has made attempts to increase tax revenues from the operation of electronic trading platforms. Accordingly, users of these platforms were sent letters in May 2025 requiring them to pay taxes on trading transactions; to do so, they must be registered as sole proprietors (FOP) and pay taxes on trading transactions; otherwise, fines ranging from 17,000 to 34,000 UAH may be imposed. Monitoring of trading transactions is carried out through the implementation of an imposed payment procedure between the seller and the buyer, where tax authorities can track the flow of funds from trading transactions, as exemplified by the monitoring system Nova Pay (Finansovyy servis, 2025) (a payment system for trading transactions by Nova Poshta LLC).

Discussion. Among the proposals for optimizing the tax burden, the authors suggest the following elements for the national tax system:

– the use of benchmarking successful tax mechanism practices among business entities in EU countries and their implementation into the national tax system;

– obligatory payment of taxes and fees by all business entities and mandatory registration of entrepreneurs with tax authorities, with obtaining the appropriate permit to conduct business activities;

– optimization of income tax rates (5% of income for service providers), social security contributions (12.52%), military tax (5%), and introduction of a medical fee at 6.98% without differentiation among groups of entrepreneurs;

– mandatory tax reporting for all business entities based on the principles of trust and law-abiding behavior of all business entities;

development by tax authorities of mechanisms for penalties or measures to block bank accounts of business entities who are persistent tax evaders or who engage in shadow business schemes to avoid paying taxes and fees;

– implementation of a tax holiday system for entrepreneurs conducting business for the first time during their first year of activity, with mandatory payment only of the medical fee to cover health risks of the business entity;

– organizational work in the B2G (business-to-government) format between business entities and the State Tax Service through

summits, video conferences, and online chats for timely informing entrepreneurs and responsive action from tax authorities regarding business needs;

– optimization of electronic services, personal accounts, and online support for business entities; digitization (smartification) of tax services through the "Diia system";

– implementation of principles of transparency and trust among all stakeholders in the tax process through the fulfillment of set tasks and the realization of business process management functions within the B2G (business-government) system.

These proposals are, of course, subject to discussion, as it is necessary to consider the country's development amid a full-scale war and factors such as the relocation of businesses from the eastern to the western regions, the closure of businesses in areas unsafe for continuing entrepreneurial activities, and the outflow of personnel due to internal and external labor migration.

Further scientific research may include an analysis of these factors and the development of a risk management system for interaction between tax authorities and business entities.

Conclusion

This scientific study conducted a comparative analysis of the tax burden on business entities in European Union countries using the case of Lithuania, and the projected tax burden on business entities in Ukraine, with the possibility of implementing EU experience in Ukraine's post-war and reconstruction economic system based on a benchmarking approach.

Proposals were developed for implementing an effective tax mechanism for small business entities and service providers, taking into account the experience of EU countries.

Overall, it is important to consider the need to replenish the national budget during the country's post-war development.

To this end, state institutions must implement tax mechanisms based on benchmarking EU countries, while considering national interests and the specifics of doing business during wartime.

It should also be noted that optimizing tax rates and fees is necessary to ease the tax burden on business entities and facilitate their transition out of shadow business schemes, aiming to increase

tax revenues at all levels of government.

An important aspect is also building an effective communication system in the B2G (business-to-government) format between business entities and tax authorities through the development of online services, personal accounts, and 24/7 online support, which enhances the digitalization (smartification) of tax service provision among all stakeholders.

It should be noted that Lithuania's experience in creating a favorable tax environment for small businesses can be useful for Ukraine, especially in the context of post-war recovery.

The benchmarking technology of effective elements of this system allows not only reducing the level of shadow economy but also laying the foundation for stable employment growth and increased tax revenues for the country.

For successful adaptation of foreign experience, it is necessary to take into account Ukrainian realities – the consequences of the war, the level of digitalization, the capacity of the tax service, and the presence of political will.

In the future, there is a need to develop a medium-term tax strategy for small businesses focused on stability, transparency, and support for entrepreneurship.

Acknowledgements

The article was carried out as part of the research support program for Lithuanian research institutions employing researchers from Ukraine; scientific and education program from Vilnius Gediminas Technical University (VILNIUS TECH) (Lithuania); scientific internship program from Vytautas Magnus University (Lithuania).

References:

1. *How much do I have to pay Sodrai health insurance contributions in 2025? (2025). Sodra.lt Available at: https://www.sodra.lt/lt/situacijos/informacija-draudejams/noriu-sumoketi-imokas/vykdau-individualia-veikla?lang=lt (Accessed: 23 May 2025).*
2. *Individual activity spreadsheet (2025). Sodra.lt Available at: https://www.sodra.lt/skaiciuokles/individualios_veiklos_skaiciuokle?lang=en (Accessed: 23 May 2025).*

3. *Personal income tax (2025). Vmi.lt Available at: https://www.vmi.lt/evmi/gyventoju-pajamu-mokestis2?lang=en (Accessed: 23 May 2025).*
4. *Paskolos «Startuok» [Loans «Start»] (2025) Ilte.lt Available at: https://ilte.lt/paslaugos/25/paskolos-startuok-90 (Accessed: 28 May 2025).*
5. *Koutsogeorgopoulou, V. (2025). Unleashing the productive potential of digitalisation in Lithuania. OECD Economics Department Working Papers No. 1753, 57 Available at: https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/04/unleashing-the-productive-potential-of-digitalisation-in-lithuania_e5fd0338/7965209f-en.pdf?utm_source=chatgpt.com (Accessed: 28 May 2025).*
6. *Prasad, A. (2024). Zakryttya FOPiv v Ukrayini torik zroslo na 32% do rekordnykh mayzhe 210 000 – doslidzhennya YouControl.Market [Closure of sole proprietorships in Ukraine increased by 32% last year to a record high of almost 210,000 – YouControl.Market study]. Forbes.ua Available at: https://forbes.ua/news/zakrittya-fopiv-v-ukraini-torik-zroslo-na-32-do-rekordnikh-mayzhe-210-000-doslidzhennya-youcontrolmarket-07012025-26091 (Accessed: 28 May 2025).*
7. *Uryad skhvalyv zakonoproyekt shchodo vprovadzhennya mizhnarodnoho obminu informatsiyeyu pro dokhody, otrymani cherez tsyfrovi platform [The government approved a bill to introduce international exchange of information on income received through digital platforms] (2025). Mof.gov.ua Available at: https://mof.gov.ua/uk/news/uriad_skhvaliv_zakonoproiekt_shchodo_vprovadzhennia_mizhnarodnogo_obminu_informatsiieiu_pro_dokhodi_otrimani_cherez_tsifrovi_platformi-5144 (Accessed: 27 May 2025).*
8. *Finansovyy servis Nova Pay [Nova Pay financial service] (2025). Novaposhta.ua Available at: https://novaposhta.ua/o_kompanii/novapay (Accessed: 28 May 2025).*

CONCLUSION

Profound structural transformations of socio-economic and ecological systems are essential in the face of escalating global challenges such as climate change, inequality, and socio-political instability. The transition toward resilience, sustainable, and inclusive development is no longer optional but a fundamental imperative for long-term viability.

Resilience provides the capacity to absorb shocks and adapt to evolving circumstances, ensuring continuity and stability of systems. Sustainable development ensures that environmental boundaries are respected while pursuing economic and social progress. Inclusivity guarantees that all stakeholders – especially marginalized communities – are active participants and beneficiaries of transformation processes.

The integration of these three principles leads to the creation of systems that are dynamic, adaptable, and fair. Successful transformations require coordinated policy frameworks, strong governance institutions, participatory planning, and multi-level stakeholder engagement. Moreover, fostering innovation, knowledge exchange, and investment in green and digital infrastructure are crucial levers of this transition.

The results of the authors' research in the scientific monograph are devoted to deepening theoretical approaches to profound structural transformations of socio-economic and ecological systems; introducing innovation, attracting investment and digitalisation for resilience, sustainable and inclusive development of economic entities; using resilience mechanisms to adaptation socio-economic and environmental systems to changes and challenges; the introduction of sustainable development tools to ensure the long-term viability of socio-economic and ecological systems; strengthening international partnerships to tackle cross-border challenges and address global economic, social and ecological issues.

The theoretical foundations for understanding profound structural transformations of socio-economic and ecological systems draw upon multiple disciplines, including systems theory, ecological economics, resilience theory, transition theory, and political ecology. Each framework offers unique insights into how complex systems

behave under stress, adapt to external shocks, and reorganize toward more sustainable and equitable configurations. Together, these theoretical approaches provide a comprehensive lens through which to analyze and guide the transformation of socio-ecological systems. They underline the importance of systemic thinking, cross-sectoral collaboration, stakeholder inclusiveness, and ethical considerations in shaping pathways toward a resilient, sustainable, and inclusive future. In this context, the authors conduct in-depth theoretical research in the field of economic security, corporate social responsibility, the functioning of industrial parks, the improvement of the concept of sustainability, the clustering of economic sectors, the management of economic development in territorial communities, ensuring the socio-economic development of the country in wartime, and the introduction of social entrepreneurship for the sustainable development of environmental systems.

Central to structural transformations is the strategic integration of innovation, investment, and digitalisation as key drivers for building resilient, sustainable, and inclusive socio-economic and environmental systems. Innovation serves as a catalyst for systemic change by enabling the development of new technologies, business models, and governance approaches that reduce ecological footprints and promote social equity. Investment, both public and private, plays a critical role in scaling these innovations and ensuring that resources are directed toward transformative sectors such as renewable energy, circular economy, sustainable agriculture, and green infrastructure. Digitalisation further amplifies this transformation by enhancing connectivity, data-driven decision-making, and transparency. Emerging digital technologies – such as artificial intelligence, the Internet of Things, and blockchain – offer new opportunities for improving efficiency, empowering citizens, and addressing structural inequalities, particularly in underserved regions. Accordingly, the authors of the scientific monograph proposed an innovative model of marketing communications in the context of digital support for sustainable development, mechanisms for the development of social innovations in social service organisations, directions for the development of innovative entrepreneurship in Ukraine, strategies for countering challenges in the implementation of artificial intelligence, a model of innovative sustainability of regions and

territorial communities, mechanisms for the interaction of innovations and information support for entrepreneurial activity, and directions for the use of digital technologies in inclusion.

Socio-economic and environmental systems are increasingly exposed to complex and interrelated challenges – such as climate change, pandemics, armed conflicts, and financial crises – that test their stability and sustainability. Resilience emerged as a key concept for understanding and guiding the adaptive capacity of systems in the face of such disruptions. Rooted in systems theory and ecological sciences, the resilience framework emphasizes the ability not only to recover from external shocks but also to learn, reorganize, and transform in response to long-term stressors and uncertainties. The authors concluded that applying resilience mechanisms to socio-economic and ecological contexts involves enhancing flexibility, diversity, redundancy, and social learning within governance, infrastructure, and institutional systems. This approach is particularly relevant for ensuring adaptive capacity in vulnerable regions, where the impacts of global and local crises are often most severe. It shifts the focus from reactive responses to proactive strategies that integrate risk management, community engagement, innovation, and sustainability planning. By embedding resilience thinking into the design and functioning of economic systems, environmental management, and social institutions, societies can better navigate transitions, mitigate risks, and seize opportunities for transformative development. In this regard, the authors of the scientific monograph propose directions to ensure the financial stability of economic entities, mechanisms the use and reproduction of human capital for the sustainable development of Ukraine, the use of a cluster approach for regional development, the introduction of tax mechanisms for environmental protection and sustainable development, and fiscal incentives for agro-industrial production, etc.

Sustainable development, as a guiding paradigm, seeks to balance economic growth, social equity, and environmental protection to ensure the well-being of both present and future generations. To operationalize this vision, a wide array of sustainable development tools has been developed and implemented at various governance levels. When effectively integrated into planning and decision-making processes, such tools help identify trade-offs, monitor

progress, guide resource allocation, and foster accountability. Importantly, they facilitate a systems-based approach, promoting coherence between ecological preservation, economic resilience, and social inclusion. To this end, the authors of the scientific monograph analysed legislation in the field of social economy, legal aspects and tax shields for financing business activities, effective use of human capital, and problems of information security management in state institutions, institutional problems of digitisation in Ukraine during the war and European integration. The main criteria for ensuring the financial security of agricultural enterprises in the context of sustainable development, the role of marketing activities in raising brand awareness have been identified; assessment of the economics of production and measures to increase the attractiveness of tourist destinations has been carried out.

In an increasingly interconnected and interdependent world, global challenges – such as climate change, pandemics, economic crises, forced migration, and geopolitical conflicts – transcend national boundaries and require collective, coordinated responses. No country can address these complex issues in isolation. As such, strengthening international partnerships has become a strategic imperative for promoting global stability, prosperity, and sustainability. International cooperation plays a pivotal role in addressing cross-border challenges by facilitating the sharing of knowledge, technology, resources, and best practices. Institutions such as the United Nations, the World Bank, the European Union, and other multilateral platforms provide crucial frameworks for aligning national efforts with global goals, including the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change. Strong international partnerships also enable the mobilization of financial and technical support for developing and vulnerable regions, thus promoting global equity and inclusive development. They help build resilience against systemic shocks, foster peaceful diplomacy, and accelerate the transition toward low-carbon, green, and digital economies. The authors of the scientific monograph considered the practical significance of international partnerships in tackling today's most urgent economic, social, and environmental challenges. In particular, this concerns the improving public administration and developing of territorial communities in

the Czech Republic, the prospects for digital transformation in project management in the Czech Republic, the development of the defense industry in Poland, the sustainable development of the tourism sector in Lithuania, the social utility of business measures in Lithuania, the use of experience in tax burden on small businesses entities in Lithuania, recycling in Northern and Central European countries, etc.

In general, embedding resilience, sustainability, and inclusivity into the core of socio-economic and ecological systems is the cornerstone of transformative change. Only through such integrated approaches, proposed by the authors in a scientific monograph, can societies achieve a just and secure future in the face of 21st century complexities.

Profound structural transformations of socio-economic and ecological systems based on resilience, sustainable and inclusive development

Scientific monograph

Format 60x84/16
Circulation: 100 copies
38,74 p.s.

HSSE Publishing Complex

13 Kuklensko shose Blvd., 4004, Plovdiv, Bulgaria
2025

ISBN 978-619-7774-27-6 (print)
ISBN 978-619-7774-28-3 (pdf)

View publication stats