# Prospects for sustainable development and ensuring the security of economic systems in the new geostrategic realities

**Scientific monograph**

University of Security Management in Košice (Košice, Slovakia) 2023

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**Prospects for sustainable development and ensuring the security of economic systems in the new geostrategic realities. Scientific monograph. – Košice: Vysoká škola bezpečnostného manažérstva v Košiciach, 2023. – 286 p.**

The authors of the scientific monograph have come to the conclusion that ensuring sustainable development and security of economic systems in the new geostrategic realities requires the use of mechanisms for state protection of national economic interests, innovative outsourcing and digital technologies, and environmental protection. Basic research focuses on assessment the economic security of insurance companies, logistics processes, farms, healthcare organisations, retail and e-commerce, and tourist destinations. The research results have been implemented in the different decision-making models in the new geostrategic realities, human resource management, environmental and international security, use of artificial intelligence, and city branding. The results of the study can be used in the developing policies, programmes and strategies for public-private partnerships, post-crisis recovery of Ukraine, and decision-making at the level of ministries and agencies that regulate the processes of managing sustainable development and security. The results can also be used by students and young scientists in the educational process and conducting scientific research on sustainable development and security of economic systems.

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Recommended for publication by the Editorial Board of the University of Security Management in Košice (No. 02 of 11 December 2023).



**ISBN 978-80-8185-069-1**

# Contents

# INTRODUCTION

In September 2015, as part of the 70th session of the UN General Assembly, the UN Summit on Sustainable Development and the adoption of the Post-2015 Development Agenda took place in New York, where new development benchmarks were approved. The outcome document of the Summit, "Transforming our world: the 2030 Agenda for Sustainable Development", approved 17 Sustainable Development Goals and 169 targets. Russia's military aggression against Ukraine has demonstrated the vulnerability of both national and global socio-ecological and economic systems, which has created the need to find mechanisms to ensure security.

Ensuring sustainable development and security is considered in three approaches that complement each other. The economic approach is to make optimal use of limited resources and apply innovative technologies to create a flow of aggregate income that would ensure at least the preservation of the aggregate capital. The ecological approach should ensure the integrity of biological and physical natural systems, their viability for self-renewal and adaptation to various changes. The social approach is focused on human development, preserving the stability of social and cultural systems, reducing the number of conflicts in society, fair distribution of benefits among people, improving the quality of life.

The purpose of writing this scientific monograph is to justify the theoretical and methodological foundations for ensuring sustainable development and security of economic systems in the new geostrategic realities.

The object of the authors' research was current challenges and threats caused by russia's military aggression on the territory of Ukraine, mechanisms for ensuring economic, food, environmental and international security, instruments of state protection of national economic interests, implementation of international experience in economic recovery and territorial development.

The subject of the study was decision-making models during martial law and the transformation of European integration processes, tools for managing human resources, logistics processes, use of artificial intelligence and innovation, the development of certain sectors of the national economy.

**Chapter 1**

# RESEARCH AND ECONOMIC EVALUATION OF THE IMPACT OF CURRENT CHALLENGES AND THREATS ON THE FUNCTIONING OF ECONOMIC SYSTEMS

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## ECONOMIC SECURITY OF INSURANCE COMPANIES IN SLOVAKIA IN TERMS OF CURRENT CHALLENGES

https://doi.org/10.5281/zenodo.10436197

**Abstract**
*Resilience to withstand the destructive impact of the external environment and modern challenges contributes to ensure the economic security of the company. The consequences of the pandemic, military actions in Ukraine, rising inflation, and the transformation of geopolitical processes in the European Union have negatively affected the economic security of insurance companies in Slovakia. The purpose*

*of the study is to assess the economic security of Slovak insurance companies. The study is based on the analysis of profitability, assets and liabilities, premiums, claims and expenses of insurance companies in Slovakia. The forecasting methodology is applied and various scenarios of further functioning of insurance companies in Slovakia, proposed by the National Bank of Slovakia, are analyzed. Insurance companies in Slovakia have sufficient capital, losses in the forecast period can be covered by current profits, and the growth of insurance claims can be transferred to reinsurers. The study found that insurance companies in Slovakia to ensure stability and economic security, and have prospects for further operation and development.*

**Keywords:** *economic security, stability, insurance companies, insurance premiums, insurance claims, insurance expenses, reinsurers, inflation, assets, liabilities, Slovakia*.

## Introduction

The economic security of insurance companies in Slovakia has been affected by the current challenges, which were accompanied by the pandemic, full-scale russian aggression in Ukraine, unacceptably high inflation, tightening of the central bank's monetary policy, etc. The processes associated with increased loan repayments by businesses and households, rising production costs of goods and services, and higher living costs had a significant impact on the ensure of economic security of insurance companies in Slovakia.

The National Bank of Slovakia supervises insurance companies, performs important social and economic functions and contributes to the long-term stability of the financial sector as a whole. In the course of supervising insurance companies, the National Bank of Slovakia identifies and evaluates information (the main information is obtained from the financial statements of insurance companies) and documents on facts relating to insurance companies and their activities, in particular, deficiencies in their activities, causes of the identified deficiencies, consequences of the identified deficiencies and persons responsible for the identified deficiencies. Such supervision is effective and proactive, with a critical eye and with regard to the overall objectives of the market, and is carried out for all insurance companies authorized to carry out insurance activities. Supervision involves the early identification of risks that may affect

the interests of policyholders or the stability of the system, their assessment and monitoring of the way in which an insurance company conducts its activities in order to prevent or detect such undesirable developments in a timely manner, which generally ensures economic security of insurance companies in Slovakia. Insurers are obliged to take measures to mitigate the identified risks or minimize their consequences. Control over solvency indicators is particularly important in this regard. In particular, insurance companies must create adequate technical reserves, invest their assets in accordance with the prudential principle and adhere to the principles of commercial practice, etc. This allows insurance companies to operate efficiently and ensure the economic security.

The concept of economic security of insurance companies has not been disclosed in the scientific literature. There are studies of certain types of risks faced by insurance companies in the current environment, such as cybersecurity (Medvec & Čillíková, 2015) and environmental risks (Csikósová et al., 2021).

Given the above-mentioned trends in the activities of insurance companies in Slovakia, there is need for a more detailed study of the processes of ensure the economic security.

**Materials and Methods**

The methodological basis of the study is the general economic principles and methods of a systematic approach to studying the processes of ensuring the economic security of insurance companies in Slovakia. The methods of analysis and synthesis have been applied, which allowed diagnose the performance indicators of insurance companies in Slovakia that affect to ensure the economic security, as well as to identify the factors of the external environment that affected the functioning of the insurance sector. The methods of forecasting the further development of insurance companies in Slovakia were used, which allowed to build different scenarios and identify critical points that could affect the sustainability of the sector. In researching and analyzing the performance indicators of insurance companies in Slovakia were used the sources of statistical information from the National Bank of Slovakia and the European Insurance and Occupational Pensions Authority.

**Research and Discussion**

Despite external challenges in 2022, insurance companies in Slovakia to ensured stable operation and achievements the economic security, as evidenced by the amount of profit received (Figure 1.1).

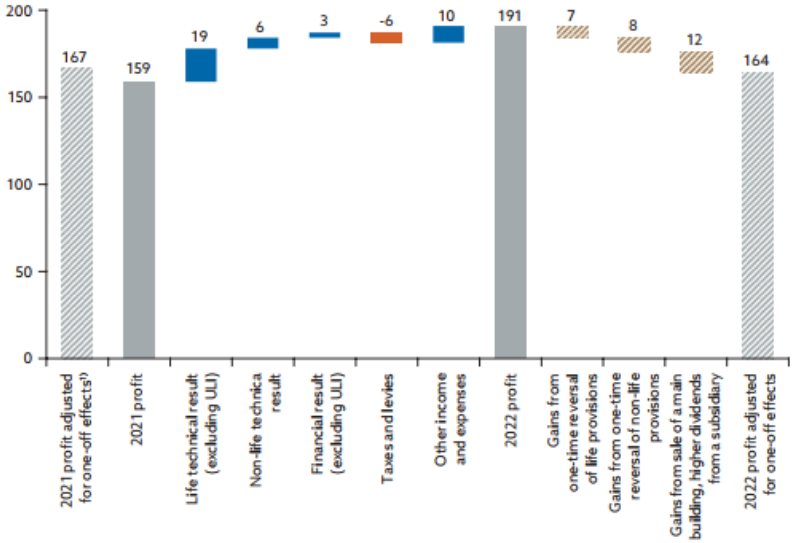


**Figure 1.1 Insurers' net profit and its components, 2021-2022 (year-on-year change in millions EUR)**

*Source: National Bank of Slovakia*

In 2022, the profit of insurance companies in Slovakia increased by 20.4% compared to 2021 to 191 millions EUR. The vast majority of insurers recorded an increase in profits. All major components of profit contributed to its growth, most notably in life insurance (excluding investment life insurance). The positive result for life insurance means that life insurance is profitable even without taking into account income from the investment of reserves. This has a positive impact on the long-term stability and economic security of the insurance sector. In 2022, non-life insurance result increased by 6.3% compared to 2021. Its development was closely linked to the pandemic: lower transport activity, which led to a reduction in the number of road traffic accidents and fewer motor insurance claims. However, the situation changed in 2022.

Property insurance saw a significant increase in claims, but reinsurers covered all of them. Reinsurers assumed about two-thirds of all property insurance claims, although they accounted for less than a third of premiums. As a result, Slovakia insurers did not experience any changes in claims costs at all. From an economic security perspective, it is positive that reinsurance companies are helping to mitigate the sharp changes in the market.

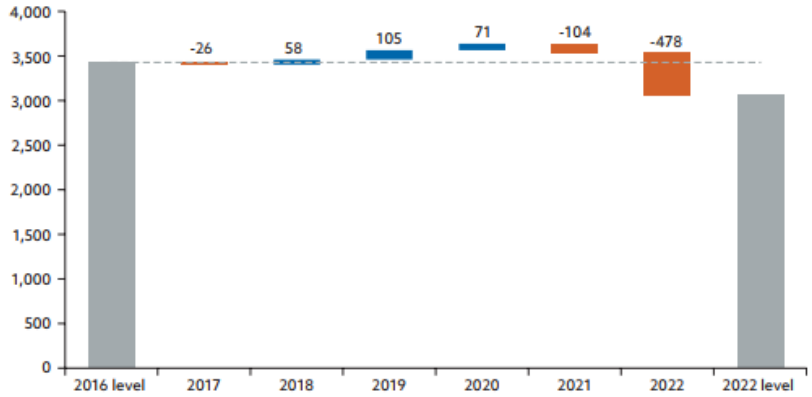


**Figure 1.2 Investment portfolio value and comprehensive income expressed as the sum of the financial result (excluding unit-linked insurance) and the change in valuation differences, 2016-2022 (millions EUR)**

*Source: National Bank of Slovakia*

In 2022, the financial result (excluding accumulative insurance) increased by 2.9% compared to 2021 (Figure 1.2). This is due to the fact that the revaluation of some investments is not charged to profit or loss but directly affects equity. This impact is particularly significant in 2022, when revaluation of investments reduced equity by 478 million EUR or 43%. The impact of this decrease is partially mitigated by positive revaluations accumulated in 2018-2020.

In 2022, return on assets increased from 2.54% to 3.16%, and return on equity from 13.7% to 21.4%. Significant changes occurred in net profit (+20.4%), assets (-8.4%) and equity (-39.4%). The stable profitability of the Slovakia insurance sector forms the first

line of defense against existing risks. Both the ROA and ROE of insurance companies in Slovakia are relatively high both in international comparison and in comparison with the banking sector (National Bank of Slovakia, 2023).

The economic security and sustainability of insurance companies in Slovakia evidenced by the balance sheet data (Table 1.1). During the period under review, the data show an excess of assets over liabilities.

*Table 1.1*

**Balance sheet by item of insurance companies in Slovakia, 2018-2021, (million EUR)**

| | 2018 | 2019 | 20220 | 2021 |
|---|---|---|---|---|
| **Assets** | | | | |
| Deferred tax assets | 10,81 | 0 | 4,6 | 1,23 |
| Property, plant & equipment held for own use | 181,02 | 186,01 | 145,56 | 106,77 |
| Investments (other than assets held for index-linked and unit-linked contracts) | 4455,33 | 4812,9 | 4975,07 | 4286,36 |
| Property (other than for own use) | 28,06 | 40,33 | 44,7 | 70,59 |
| Holdings in related undertakings, including participations | 168,38 | 292,99 | 193,02 | 188,35 |
| Equities | 4,87 | 6,62 | 7,94 | 0,85 |
| Equities – listed | 1,34 | 1,71 | 1,57 | 0 |
| Equities – unlisted | 3,53 | 4,9 | 6,36 | 0,85 |
| Bonds | 3963 | 4165,06 | 4388,45 | 3718,27 |
| Government Bonds | 2410,39 | 2312,58 | 2408,94 | 2024,11 |
| Corporate Bonds | 1544,37 | 1843,44 | 1972,64 | 1688,37 |
| Structured notes | 8,24 | 9,04 | 6,86 | 5,78 |
| Collective Investments Undertakings | 226,65 | 259,36 | 311,04 | 291,1 |
| Derivatives | 2,62 | 3,25 | 3,63 | 2,83 |
| Deposits other than cash equivalents | 61,76 | 45,28 | 26,29 | 14,38 |
| Assets held for index-linked and unit-linked contracts | 1159,23 | 1276,63 | 1249,26 | 1159,09 |
| Loans and mortgages | 43,25 | 40,98 | 78,25 | 145,06 |
| Loans on policies | 6,65 | 7,65 | 4,89 | 4,23 |
| Loans and mortgages to individuals | 0,34 | 0,34 | 0,34 | 0,35 |
| Other loans and mortgages | 36,26 | 32,99 | 73,02 | 140,48 |
| Reinsurance recoverables from | 207,36 | 191,3 | 203,94 | 153,3 |
| Non-life and health similar to | 216,31 | 195,91 | 212,34 | 161,26 |

| | | | | |
|---|---|---|---|---|
| non-life | | | | |
| Non-life excluding health | 212,27 | 193,14 | 209,88 | 158,67 |
| Health similar to non-life | 4,04 | 2,77 | 2,46 | 2,59 |
| Life and health similar to life, excluding health and index-linked and unit-linked | -9,82 | -5,39 | -8,4 | -7,35 |
| Health similar to life | -17,54 | -16,28 | -19,82 | -14,76 |
| Life excluding health and index-linked and unit-linked | 7,71 | 10,89 | 11,42 | 7,41 |
| Life index-linked and unit-linked | 0,88 | 0,79 | 0 | -0,6 |
| Insurance and intermediaries receivables | 111,06 | 103,65 | 104,02 | 68,27 |
| Reinsurance receivables | 24,04 | 27,64 | 23,03 | 18,5 |
| Receivables (trade, not insurance) | 19,07 | 31,28 | 18,53 | 13,55 |
| Own shares (held directly) | 0,88 | 0,96 | 0,96 | 0,96 |
| Cash and cash equivalents | 210,84 | 244,55 | 259,53 | 192,41 |
| Any other assets, not elsewhere shown | 13,2 | 9,31 | 8,42 | 6,14 |
| **Total assets** | **6436,08** | **6925,22** | **7071,18** | **6151,63** |
| **Liabilities** | | | | |
| Technical provisions – non-life | 884,95 | 879,35 | 910,93 | 763,78 |
| Technical provisions – non-life (excluding health) | 832,78 | 828,29 | 864,58 | 735,88 |
| Best Estimate | 784,04 | 771,94 | 812,8 | 691,55 |
| Risk margin | 48,75 | 56,35 | 51,78 | 44,33 |
| Technical provisions – health (similar to non-life) | 52,16 | 51,06 | 46,36 | 27,9 |
| Best Estimate | 46,49 | 44,45 | 41,58 | 23,84 |
| Risk margin | 5,67 | 6,62 | 4,78 | 4,06 |
| Technical provisions – life (excluding index-linked and unit-linked) | 2325,05 | 2504,79 | 2661,26 | 2396,31 |
| Technical provisions – health (similar to life) | -210,4 | -269,58 | -314,32 | -221,59 |
| Best Estimate | -266,06 | -317,87 | -396,24 | -279,83 |
| Risk margin | 55,66 | 48,29 | 81,92 | 58,24 |
| Technical provisions – life (excluding health and index-linked and unit-linked) | 2535,45 | 2774,37 | 2975,58 | 2617,91 |
| Technical provisions calculated as a whole | 1,71 | 1,77 | 1,69 | 1,55 |
| Best Estimate | 2392,77 | 2604,23 | 2798,97 | 2465,11 |
| Risk margin | 140,97 | 168,37 | 174,92 | 151,25 |
| Technical provisions – index-linked and unit-linked | 1050,98 | 1139,72 | 926,1 | 783,65 |

| | | | | |
|---|---|---|---|---|
| Technical provisions calculated as a whole | 310,15 | 390,96 | 298,13 | 116,35 |
| Best Estimate | 677,94 | 679,95 | 561,38 | 607,14 |
| Risk margin | 62,89 | 68,81 | 66,6 | 60,16 |
| Provisions other than technical provisions | 34,06 | 32,6 | 35,26 | 30,09 |
| Pension benefit obligations | 1,56 | 1,68 | 3,68 | 1,57 |
| Deposits from reinsurers | 97,01 | 88,49 | 87,07 | 94,68 |
| Deferred tax liabilities | 168,38 | 164,34 | 198,2 | 167,8 |
| Derivatives | 1,76 | 1,61 | 1,22 | 0 |
| Debts owed to credit institutions | 3,51 | 2,53 | 7 | 6,24 |
| Financial liabilities other than debts owed to credit institutions | 0,6 | 38,81 | 34,67 | 19,87 |
| Insurance & intermediaries payables | 183,19 | 192,29 | 185,67 | 141,1 |
| Reinsurance payables | 94,19 | 124,3 | 127,81 | 97,91 |
| Payables (trade, not insurance) | 80,18 | 85,25 | 110,48 | 80,25 |
| Subordinated liabilities | 19,3 | 0,2 | 0 | 5 |
| Subordinated liabilities in Basic Own Funds | 19,3 | 0,2 | 0 | 5 |
| Any other liabilities, not elsewhere shown | 46,04 | 42,95 | 44,5 | 42,12 |
| **Total liabilities** | **4990,75** | **5298,90** | **5333,87** | **4630,37** |
| **Excess of assets over liabilities** | **1445,33** | **1626,32** | **1737,32** | **1521,26** |

*Source: European Insurance and Occupational Pensions Authority*

The capital strength of insurance companies in Slovakia is declining due to an increase in the share of the nonvolatile component of capital. The Solvency Capital Requirement (SCR) coverage ratio decreased from 208% to 195%. While the capital requirement decreased by 5.1%, the available own funds decreased more significantly – by 11.3% (National Bank of Slovakia, 2023). The decrease in regulatory capital is mainly due to the uneven impact of rising interest rates on insurers' liabilities and assets. While liabilities were revalued only at risk-free rates, assets decreased more significantly, as they also take into account the increase in risk premiums. Most individual insurers showed deterioration. If the situation on the financial markets calms down, the capital of the Slovakia insurance sector may also stabilize.

The decrease in capital was concentrated in the revaluation reserve and did not affect its volatile component, EPIFP. As a result, the share of EPIFP in capital increased further. At the end of 2022, it

reached its highest level to date – 63% (National Bank of Slovakia, 2023).

Equity capital and regulatory capital (eligible own funds) had markedly different dynamics. Both decreased in value, but the decline in balance sheet capital was almost four times more pronounced. This is because equity capital does not take into account the revaluation of liabilities – technical provisions. For this reason, regulatory capital is a more adequate indicator of the sustainability of the Slovakia insurance sector, and insurance companies have thus ensured economic security.

Stable profitability of the Slovakia insurance sector forms the first line of defense against existing risks. The return on assets and ROE of insurance companies in Slovakia are relatively high both in international comparison and in comparison with the banking sector.

Life insurance resumed growth, with interest particularly in investment life insurance (Table 1.2). After several years of decline, life insurance premiums grew by 1.1% in 2022. Premiums in traditional life insurance achieved the most modest decline since 2019 (after adjusting for reclassification, the decline was 3.7% year-on-year). Investment life insurance achieved one of the best historical results. Its annual growth was 6.2% (National Bank of Slovakia, 2023).

*Table 1.2*

**Premiums, claims and expenses of insurance companies in Slovakia, 2019-2022, (million EUR)**

| | | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **Non-Life** | **Premiums written** | | | | |
| | Gross – Direct Business | 1213,57 | 1237,69 | 1011,26 | 1075,01 |
| | Gross – Proportional reinsurance accepted | 51,97 | 50,22 | 41,79 | 53,57 |
| | Reinsurers' share | 286,3 | 289,32 | 189,73 | 195,68 |
| | Net | 979,24 | 998,59 | 863,32 | 932,91 |
| | **Premiums earned** | | | | |
| | Gross – Direct Business | 1203,76 | 1224,53 | 997,94 | 1050,43 |
| | Gross – Proportional reinsurance accepted | 50,2 | 49,97 | 40,89 | 54,39 |
| | Reinsurers' share | 284,95 | 292,98 | 188,38 | 194,26 |
| | Net | 969,02 | 981,52 | 850,45 | 910,56 |
| | **Claims incurred** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Gross – Direct Business | 605,92 | 575,72 | 435,84 | 559,11 |
| | Gross – Proportional reinsurance accepted | 11,32 | 31,51 | 20,66 | 17,96 |
| | Reinsurers' share | 129,34 | 158,94 | 71,43 | 171,31 |
| | Net | 487,89 | 448,29 | 385,06 | 405,76 |
| | **Changes in other technical provisions** | | | | |
| | Gross – Direct Business | 0,35 | -1,76 | 0,99 | 0,58 |
| | Gross – Proportional reinsurance accepted | -0,46 | -0,46 | -8,43 | -0,04 |
| | Reinsurers' share | -0,1 | -0,57 | -0,29 | 0,78 |
| | Net | -0,01 | -1,65 | -7,15 | -0,24 |
| | **Expenses incurred** | 398,49 | 412,93 | 336,75 | 377,01 |
| | **Administrative expenses** | | | | |
| | Gross – Direct Business | 75,57 | 85,73 | 73,52 | 77,51 |
| | Gross – Proportional reinsurance accepted | 1,12 | 1,44 | 1,55 | 1,14 |
| | Reinsurers' share | 2,62 | 2,16 | 2,09 | 1,94 |
| | Net | 74,06 | 85,01 | 72,98 | 76,71 |
| | **Investment management expenses** | | | | |
| | Gross – Direct Business | 1,99 | 3,35 | 2,63 | 3,27 |
| | Gross – Proportional reinsurance accepted | 0 | 0,03 | 0,02 | 0,02 |
| | Net | 1,99 | 3,38 | 2,65 | 3,28 |
| | **Claims management expenses** | . | . | . | . |
| | Gross – Direct Business | 36,06 | 34,32 | 24,26 | 28,14 |
| | Gross – Proportional reinsurance accepted | 0,24 | 0,22 | 0,2 | 0,25 |
| | Net | 36,29 | 34,54 | 24,46 | 28,39 |
| | **Acquisition expenses** | | | | |
| | Gross – Direct Business | 266,98 | 282,69 | 226,29 | 239,24 |
| | Gross – Proportional reinsurance accepted | 17,05 | 16,49 | 15,65 | 27,69 |
| | Reinsurers' share | 56,55 | 75,73 | 50,53 | 43,28 |
| | Net | 227,49 | 223,46 | 191,42 | 223,65 |

| | | | | | |
|---|---|---|---|---|---|
| | **Overhead expenses** | | | | |
| | Gross – Direct Business | 62,93 | 62,15 | 41,14 | 44,93 |
| | Gross – Proportional reinsurance accepted | 2,28 | 5,17 | 4,11 | 0,05 |
| | Reinsurers' share | 6,56 | 0,77 | 0 | 0 |
| | Net | 58,65 | 66,55 | 45,25 | 44,99 |
| | **Other expenses** | 4,91 | 1,96 | -1,01 | -0,41 |
| | **Total expenses** | 403,39 | 414,89 | 335,74 | 376,61 |
| | **Combined Ratio** | 0,91 | 0,88 | 0,85 | 0,86 |
| | **Expense Ratio** | 0,41 | 0,42 | 0,4 | 0,41 |
| **Life** | **Premiums written** | | | | |
| | Gross | 1014,43 | 935,68 | 786,05 | 738,67 |
| | Reinsurers' share | 52,79 | 57,27 | 56,12 | 13,89 |
| | Net | 961,64 | 878,41 | 729,93 | 724,77 |
| | **Premiums earned** | | | | |
| | Gross | 1015,03 | 937,3 | 786,18 | 739,31 |
| | Reinsurers' share | 52,59 | 57,23 | 56,28 | 13,82 |
| | Net | 962,44 | 880,07 | 729,9 | 725,49 |
| | **Claims incurred** | | | | |
| | Gross | 763,19 | 635,01 | 563,09 | 561,96 |
| | Reinsurers' share | 3,95 | 4,42 | 3,96 | 3,5 |
| | Net | 759,24 | 630,59 | 559,12 | 558,46 |
| | **Changes in other technical provisions** | | | | |
| | Gross | -129,9 | -52,01 | -140,87 | 181,7 |
| | Reinsurers' share | -17,11 | -17,4 | -18,47 | -0,15 |
| | Net | -112,79 | -34,6 | -122,4 | 181,85 |
| | **Expenses incurred** | 231,99 | 255,19 | 214,27 | 197,38 |
| | **Administrative expenses** | | | | |
| | Gross | 43,65 | 39,42 | 28,68 | 26,63 |
| | Net | 43,65 | 39,42 | 28,68 | 26,63 |
| | **Investment management expenses** | | | | |
| | Gross | 2,24 | 3,61 | 2,58 | 2,77 |
| | Net | 2,24 | 3,61 | 2,58 | 2,77 |
| | **Claims management expenses** | | | | |
| | Gross | 7,84 | 6,76 | 5,63 | 7,25 |
| | Net | 7,84 | 6,76 | 5,63 | 7,25 |
| | **Acquisition expenses** | | | | |
| | Gross | 177,9 | 192,6 | 160,93 | 143,3 |

| | | | | | |
|---|---|---|---|---|---|
| | Reinsurers' share | 39,95 | 16,54 | 9,37 | 2,9 |
| | Net | 137,95 | 176,06 | 151,56 | 140,4 |
| | **Overhead expenses** | | | | |
| | Gross | 40,51 | 29,34 | 25,82 | 20,34 |
| | Reinsurers' share | 0,2 | 0 | 0 | 0 |
| | Net | 40,31 | 29,34 | 25,82 | 20,34 |
| | **Other expenses** | -19,55 | -54,25 | -30,49 | -0,94 |
| | **Total expenses** | 212,43 | 200,93 | 183,79 | 196,44 |
| | **Total amount of surrenders** | 348,34 | 280,79 | 286,72 | 277,96 |

*Source: European Insurance and Occupational Pensions Authority*

Inflation was reflected in non-life insurance (Table 1.2). Favourable trends were also observed in other types of insurance, except life insurance. Insurance premiums grew by 7.3% year-on-year, almost twice as much as over the past eight years. The increase is likely due to the inflationary environment: higher individual claims costs led to higher average premiums (National Bank of Slovakia, 2023).

Premium growth accelerated in motor insurance. Premiums in motor hull insurance grew by 3.8% year-on-year and in accident insurance by 7.5% (National Bank of Slovakia, 2023).

Property insurance showed an annual growth of 2.7%. Although the first half of 2022 showed a slowdown in growth, it was ultimately the fastest growth since 2018. Of particular interest was the aforementioned imbalance between the reinsurer's share of premiums and claims expenses (National Bank of Slovakia, 2023).

The vast majority of insurance companies in Slovakia are resilient to external risks and ensure economic security even in an adverse scenario. On average, the Slovakia insurance sector would meet 179% of capital requirements in the worst-case scenario (Figure 1.3). Some insurers might even fall below the minimum regulatory threshold, with a combined share of premiums written of less than 8%. All other insurers will have a Solvency Capital Requirement above 120% even in the worst-case scenario. Almost two-thirds of the estimated losses under the adverse scenario would be covered by the sector's current profits.

The most significant impact of the adverse scenario would be an increase in non-life insurance claims of 135 million EUR. This is based on the assumption that claims expenses would increase by

10% one-off compared to the long-term average. However, insurers will actually pass on part of these losses to reinsurers (National Bank of Slovakia, 2023).

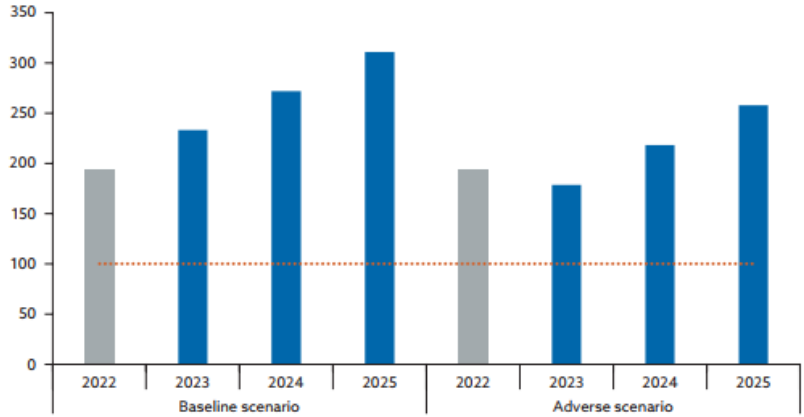


**Figure 1.3 The Solvency Capital Requirement coverage ratio in different stress test scenarios (%)**

*Source: National Bank of Slovakia*

**Conclusions**

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

1. The economic security of insurance companies in Slovakia ensured by their resilience to external challenges and the ability to conduct effective activity in the insurance market. The main current challenges are the consequences of the pandemic, military operations in Ukraine, macroeconomic instability in the European Union, transformation of geopolitical relations, etc.
2. Despite external challenges and the economic situation of business entities in Slovakia and the European Union as a whole, insurance companies in Slovakia managed to maintain their economic potential, achieve profitability, and ensure positive activity dynamics. This was primarily due to the state supervision policy of the National Bank of Slovakia and effective risk management strategies of insurance companies.

3. During the period under review, insurance companies in Slovakia increased their profitability, return indicators, and assets exceeded liabilities. Reinsurers mitigated the negative impact of the external environment on the activities of insurance companies in Slovakia, which affected the overall financial result and ensuring economic security.
4. The stress test scenarios developed for the solvency and resilience of insurance companies in Slovakia show that they have sufficient capital, losses in the forecast period can be covered by current profits, and the growth of insurance claims can be transferred to reinsurers.

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# PEST ANALYSIS OF HUMAN RESOURCE MANAGEMENT DURING EMERGENCIES

https://doi.org/10.5281/zenodo.10436275

**Abstract**
*In the face of an emergency, businesses often end up in chaos. Following some predefined guidelines is recommended in order to minimise confusion. This is why business managers and owners must understand the importance of investing in human capital. Not only choosing the most appropriate approach to human resources management, but also reviewing it periodically is important. Recent events, such as the Covid-19 pandemic and the war in Ukraine, have highlighted the need to optimise human resource management in the logistics sector. The PEST analysis carried out has identified that the logistics sector is particularly sensitive to international politics and the geopolitical situation. However, in the context of emergencies, this becomes a challenge along with the economic, social and technological aspects. Therefore, well-coordinated human resource management at all levels, both in the internal and external environment, must be ensured*.

**Keywords:** *human resources, emergency, management, PEST*.

## Introduction

Human resources are one of the most important assets in today's business world. Motivated and skilled people working in a team are able to create the right atmosphere for a company's success. Human resources are one of the key elements of success in achieving

objectives in the challenging environment (Yusefi et al., 2022). However, not only having competent and qualified staff, but also the right method of coordinating them is important. The choice of the right human resource management model (HRM) for the development of the company's activities can determine the overall competitiveness of the company in the market.

Today's everyday life is highly dynamic and unpredictable. Unforeseen situations not only change people's habits, daily routines, the flow and rhythm of life, but also have a negative impact on business entities. Emergencies lead to chaos and uncertainty, forcing us to change everything from the ground up: to adapt to new conditions and requirements, and to look for certain alternatives or new methods to survive the crisis period.

Businesses have also been forced to adapt to unusual and unprecedented conditions. Some of them failed, while others managed to optimise their operations and continue with minimal losses (Bratianu & Bejinaru, 2021). This has led to a fundamental review of existing HRMs and an assessment of the impact of both internal and external factors.

**Materials and methods**

In order to provide a definition of an emergency, it would be useful to analyse the concept of an emergency itself. The concept is rather straightforward, with no room for interpretation, so let's review the definition of an emergency from different sources.

*An emergency* is a situation arising from natural, technical, ecological, social or military causes and resulting in a sudden and serious danger to human life or health, property, nature, or causing death, injury or property damage (Ministry of Health of the Republic of Lithuania, 2022).

*An emergency event* means an event of a natural, technical, ecological or social nature having reached or exceeded the set criteria and posing a threat to human beings, their physiological or social living conditions, property, economy and the environment (Department of Civil Protection of the Republic of Lithuania, 2022).

The international term *force majeure*, which is commonly used in the context of contracts, agreements or other written obligations, could also be synonymous to an emergency. "Force majeure refers to an unexpected event such as a war, crime, or an earthquake, which

prevents someone from doing something that is written in a legal agreement" (Cambridge Dictionary, 2023).

Emergencies can be categorised by type:

1) **natural** – obvious changes in weather conditions that can lead to natural disasters, large-scale forest and peatland fires, mass epidemics or dangerous natural phenomena;

2) **technical** – these include disruptions in various technological processes leading to fires, explosions, releases or emissions of radioactive pollutants. These also are accidents of different scale and modes of transport, building collapses, and other accidents in energy or main pipelines;

3) **ecological** – causes leading to changes in the state of the land, composition and properties of the atmosphere and hydrosphere;

4) **social** – include mass riots, conflicts and disturbances, various blockades and provocations, as well as acts of terrorism. These may also include military actions in Lithuania or in the territories of its neighbouring countries (Department of Civil Protection of the Republic of Lithuania, 2022).

Emergencies may originate from:

1) **internal risk factors**: radiation, chemical, biological, transport accidents, natural disasters, influxes of illegal migrants, acts of terrorism;

2) **external risk factors**: threat of war, economic and social instability in neighbouring countries, etc.

All these factors may have a negative impact on the overall public health, risk of individual and mass health disorders, deaths and diseases.

In case of a risk of an emergency or other extraordinary situation, a special crisis management system is brought together in Lithuania (Jačiauskas, 2022).

Human resources are the cornerstone of any organisation. Some of the many functions performed by HRM specialists include recruitment and training of people, assistance with skills development, employee evaluation and recognition systems in financial or other forms. While this is not an exhaustive list of duties, these are some of the most important and basic responsibilities. Due to the dynamic evolution of human resources in any institution and its complexity, companies must be able to adapt to constantly

changing environmental conditions and circumstances (Figueroa et al., 2019).

The COVID-19 pandemic has led to a re-consideration of key corporate attitudes and qualifications, thus human resources have faced significant challenges.

In addition to job insecurity, business continuity and financial concerns, several key stressors may have affected the mental health of employees during and after the COVID 19 pandemic:

1) perceptions of their own safety, threat and risk of infection;
2) stressful nature of information overload and uncertainty;
3) quarantine and isolation;
4) social exclusion (Hamouche, 2020).

"In the midst of every crisis lies great opportunity" (Kaul et al., 2020) – this saying perfectly captures the impact of emergencies on companies and their human capital. A crisis creates an opportunity for a strategically focused and strong leader to resolve a challenge in a way that becomes a competitive advantage for the company. The strongest and surviving organisations were those that were able to respond to the emergency effectively and quickly.

Successful employers are not only well versed in recruitment, retention and profit generation techniques, but also respond appropriately to the psychological health of their employees. This problem is particularly relevant in the face of the COVID-19 pandemic, but when it comes to the logistics and transport sector in particular, the war in Ukraine has also created similar problems for transport managers and freight forwarders working closely or specifically with the eastern market. In the face of such emergencies, employees deal with existential questions, often ending up on the brink of burnout. Employees are constantly under stress because of the uncertainty of the future, their jobs and the overall fate of the company. The research conducted by Yu, Park and Hyun (2021) found that two-thirds of respondents experience difficulties in focusing on tasks or deliverables during an emergency because of the stress they feel. If not managed properly, stress can lead to a variety of physical problems, exacerbate mental health problems and end up in depression and other mental health conditions. This affects individual performance, which in the long run has a negative impact on the performance and productivity of the entire company (Yu et al., 2021).

Recent events – the COVID-19 global pandemic and the war in Ukraine – have highlighted the real importance of logistics during emergencies. Logistics plays a crucial role in such crises, as this sector is responsible for the transport of medicines, essential foodstuffs, humanitarian aid or ammunition. The authors emphasize the importance of the decisions taken by the logistics sector in each phase of emergency or disaster management (Liu et al., 2020).

*Concept and structural analysis of logistics processes.* Logistics processes are perceived as a structured sequence of events and activities related to the interconnectedness of different types of flows aimed at the movement and storage of tangible and intangible resources (commodities, process participants, transactions and related information) (Bukowski et al., 2015). Logistics processes can be described as a system of interconnected operations directed towards the flow of physical objects and information related thereto (Molenda, 2019). Riazanova & Žilinskienė, (2019) provide a structural analysis of logistics processes, which consists of the following steps: 1) Transportation (D'este, 2017); 2) Accepting orders (Knorring, 2020); 3) Customer service policy (Mesjasz-Lech, 2015); 4) Product manufacturing and processing (Khisamova et al., 2019); 5) Inventory management (Rybalko et al., 2020); 6) Optimal use of transport warehouses (Žunić et al., 2018); 7) Cargo handling (Puzinavičius & Vaitiekus, 2021); 8) Management of sub-standard cases (Kwesi-Buor et al., 2019).

To summarise this analysis, all of the processes listed above, taken as a whole and each individually, can be concluded to be very important and could not function without each other. Well-designed tasks, well-considered decisions and choices create a harmonious flawless logistics process.

Logistics can thus be said to be a key factor in economic development, economic growth and market integration. It has a significant impact on the economic performance of various industries.

Unlike in the past, today the importance of logistics and the need for its development and expansion at global, regional and local level is becoming increasingly important. Logistics development mainly relates to logistics and transport infrastructure, creating an economic environment and facilitating a smooth flow of goods, people and

capital.

However, workforce, logistics competences and skills are an increasing problem. It is a labour-intensive activity and, despite the high level of technological development, mechanisation, automation and robotization of processes, the main resources still are staff and workforce.

Due to its dynamic nature and necessity, the logistics sector is one of the most affected sectors in terms of emergencies. Employees are not only surviving the necessity to continue the work that they can do, but also the uncertainty of whether their jobs will be saved and whether the company will be able to survive the crisis.

For people suffering from psychological illnesses, depression or having various commitments, such emergencies can cause serious health problems. Today's major developments in the world force us to take a new perspective at things and search for ways to prevent depletion of human resources, defining a model of work and performance of tasks which would ensure continuity of work, allowing employees to feel safe, productive and to have a good life-work balance.

It is therefore important to consider both extrinsic and intrinsic factors, and PEST is one of the tools allowing to do that.

PEST analysis is a marketing tool that helps to identify the significant environmental factors that have a positive or negative impact on human resources of companies in the logistics sector (Misiūnaitė, 2021).

**Results and Discussion**

PEST analysis can provide insight into the current external influences on companies operating in the logistics sector to rely on facts rather than assumptions. The results of the analysis can reveal factors that may change in the future. This not only allows to identify weak links in the processes, but also to prevent the potential risks or negative factors by improving the strong links, thus ensuring smooth running of the processes.

**Political factors**. Due to the current situation in the world, there are currently many problems resulting from political disagreements between countries and restrictions on trade or movement. International politics and geopolitical influences can also have an impact on the logistics sector in emergencies. For example, closing

of borders, trade restrictions or the impact of international conflicts can hinder the operation of the logistics chain or require new solutions and cooperation with other countries. In the face of emergencies, political factors can affect the functioning of the logistics sector. Public authorities may impose specific requirements and rules relating to the performance and safety of workers, rerouting transport flows or other restrictions in order to ensure stable operation of the logistics network. Emergencies may require special permits or certifications which may affect the qualifications of employees or the operation of the organisation. It may be important for logistics companies to cooperate with the authorities and obtain the necessary permits to operate under emergency conditions. These political factors are important when analysing the management of human resources in the logistics sector in emergencies. Organisations need to be aware of the political factors and take appropriate actions to ensure proper personnel management and effective logistics operations in the face of an emergency.

**Economic factors**. When analysing the management of human resources in the logistics sector in the context of an emergency, it is important to properly assess the impact of economic factors. Emergencies can increase human resource costs of logistics companies. For example, there may be extra costs related to security measures, recruitment of additional staff or, conversely, dismissal of the existing staff. Companies operating in the logistics sector need to be able to adapt quickly to changing conditions and to find alternative solutions in order to avoid financial losses and customer dissatisfaction and to be able to protect their most important asset – their employees. Emergencies can have a significant impact on demand and sales. For example, during a crisis, demand can drop dramatically, which can have a direct impact on staffing needs and staffing levels. Logistics companies need to take these changes in demand into account and flexibly adjust staffing levels to maintain efficient operations and avoid unnecessary costs. The economic aspects must be considered in the logistics sector's human resources management strategy in the context of an emergency. This will help organisations to adapt to change, avoid unnecessary costs and ensure operational efficiency even under the most difficult conditions.

**Social factors.** Emergencies, such as a pandemic, fire or terrorist

attack, can threaten the safety of employees. This is particularly important in the logistics sector due to the physical nature and dynamics of work. Companies need to ensure compliance with safety rules, provide adequate training and inform employees about safety measures. It is also important that companies have effective plans and procedures for crisis situations in place. Emergencies can affect interaction and cooperation between workers. Such factors as remote work, isolation or limited communication opportunities can have a negative impact on teamwork and the achievement of common goals. Companies need to encourage communication and cooperation between employees, even if they work remotely and are not physically able to work together. Any situation in which fear and uncertainty play a central role is detrimental to a person's psychological and emotional well-being. Such situations can cause severe stress, anxiety and emotional strain for employees. In such cases, companies must minimise the negative impact on employees' well-being or provide psychological support aimed at helping employees to cope with stress and adapt to change. This may include psychological counselling, stress management programmes or other support measures. It is also essential to be able to optimise human resources and to give employees every opportunity to retrain or take on new tasks. Companies must invest in training their staff, refreshing their knowledge and skills to enable them to operate effectively in emergencies and to cope with challenges. Social aspects must be considered and integrated into human resource management in the logistics sector in the context of emergencies. People are the main driving force of companies, and their well-being and support is essential to ensure continuity of operations and operational efficiency under emergency circumstances.

**Technological factors.** Technological aspects play the key role in the analysis of human resource management in the logistics sector in the context of emergencies. In the face of emergencies, logistics companies need effective and reliable means of communication with their employees, both internally and externally. Technological tools such as mobile, radio communication or specific applications can be used to transmit information, directions and safety instructions to employees. The negative consequences of unusual situations can lead to staff shortages or restricted movement of employees. In such

cases, it may be worthwhile to automate the company's processes or to use other technological solutions that can perform certain actions without human intervention. Artificial intelligence and process automation can help to organise the logistics sector's activities in emergencies. This can include not only flow management, but also forecasting the demand for goods or workforce management. In order to effectively manage human resources in the logistics sector in emergencies, it is important to use the right technological tools that can help to optimise operations, ensure safety and efficiency. These tools help to respond to situations faster, to monitor and manage operations, to communicate seamlessly with employees and to provide the necessary information to operate efficiently in unstable situations.

**Conclusions**

The analysis of scientific literature revealed that if a company can properly adapt and coordinate the competences, skills, experience and qualifications of its employees, it can achieve a growth in its competitive advantage in the market.

It was found that in order to retain the effectiveness of the methods analysed, the planned guidelines should be periodically reviewed, adapting new models as necessary to maximise the potential of the company.

The structural analysis of the logistics processes revealed that all the processes, taken together and individually, are very important and could not function without each other.

The results of the PEST analysis presented here show the possibility of identifying factors that may change in the future. It is therefore possible to anticipate weak links in the processes and to prevent potential risks or negative factors by improving the strong process links. Properly coordinated workforce determines the company's operating efficiency, except in the face of emergencies.

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# FACTORS OF USING INNOVATIVE OUTSOURCING

https://doi.org/10.5281/zenodo.10436292

**Abstract**
*The research is devoted to studying the theoretical aspects of the problem of substantiating the strategy of innovative outsourcing. The article proves the importance of innovation outsourcing in the context of formation of the knowledge economy, intensification of innovation development as a tool for ensuring competitive advantages. The factors for choosing innovative outsourcing are highlighted, the options for innovative companies to use outsourcing practices are considered, and warnings are given regarding possible negative consequences of cooperation with outsourcers. Attention is focused on the need for a comprehensive consideration of these factors in the context of ensuring the effectiveness of companies' innovation activities.*

**Keywords:** *outsourcing, innovations, management, innovation process, business process, outsourcing service provider*.

## Introduction

The global innovation space in terms of the emergence and development of the knowledge economy is characterized by a number of trends, including: increased competition in the markets of innovative products, intensification of innovation activities, reducing the duration of innovation cycles, accelerating the rate of moral obsolescence, etc. All of this increases the requirements to ensuring the competitiveness of innovations, and thus creates new challenges for their expanded reproduction and effective implementation by innovative companies. One of the most effective tools for achieving these goals is innovative outsourcing, whose importance is growing every year. The effectiveness of outsourcing practices is evidenced

by numerous analytical studies. Outsourcing is very common among European and American companies. In particular, in Germany 87% of companies use outsourcing, in France – 88%, in Liechtenstein – 94%. On average, in Europe this indicator is 83% and in the USA – 89% (Front Desk Helpers, 2019). The practice of transferred companies outsourcing certain functions/business processes is developing rapidly. In 2023, the compound annual growth rate of the innovation outsourcing market is expected to exceed 8% (Innovation outsourcing, 2021). In general, the global outsourcing industry in 2022 reached 10 billion dollars USA. It is projected to reach 20 billion dollars USA by 2025 and 760 billion dollars USA in 2027 (Front Desk Helpers, 2023).

Of course, the effectiveness of using outsourcing is largely determined by the validity of management decisions regarding both the fact of its implementation and the choice of specific conditions for its realization, which is determined by a certain combination of factors for each individual innovation company.

**The aim of the study** is to promote a comprehensive understanding of the factors of using innovation outsourcing as an effective mechanism for achieving the goals of innovation-oriented companies.

## Materials and Methods

In the scientific literature is widely studied the issue of outsourcing. Outsourcing viewed as the purposeful separation of certain business processes and their realization by other organizations that have the relevant experience, knowledge, facilities and perform their duties in a particular area better than the customer-organization and on a contractual basis (Ratynskyj, 2018). Summarizing its importance in solving the problems of companies in the current management environment, outsourcing is interpreted as a business solution; business model; business technology, a special form of business relations, a method of business organization, a type of integration into the business space; a new innovative management concept (Lysyuk, Tereshchuk, 2016; Saiensus, 2018); as an effective business strategy, whereby an organization subcontracts some of its business functions to a third party (Gallimore, 2022).

Researchers (Chesbrough, 2003; Nambisan, Sawhney, 2007)

define the importance of innovative outsourcing through the prism of the concept of open innovation, the importance of using external sources to achieve the innovative goals of companies. In publications, there is a vision (How to grow your business with innovation outsourcing, 2021), according to which innovation outsourcing is considered as open innovation. Also, innovation outsourcing considered a type of strategic outsourcing (McKinney, 2022). Researchers reveal the essence of innovation outsourcing, in particular: as a business strategy, according to which the company's management transfers part of the innovation management functions to third-party organizations (Buniak, 2021); is the delegation of some or all of the innovation process or technology to external teams, from generating ideas for new products or services, to developing strategies to turn ideas into reality, and to preparing them for market launch as specific forms of products (Trung, 2022); as an open system of interconnected types activities that adopt the firm's strategy and contribute to improving its efficiency through innovation (Rehman et al., 2018). In the literature considerable attention is paid to the organizational aspects of implementation innovation outsourcing (Lynch, 2011; Hayler, 2015; Oshri et al, 2022, Gallimore b, 2022); a process approach to managing outsourcing in the field of innovation and its modelling is being studied (Vaxevanoua, Konstantopoulosa, 2015; Kotovs'ka et al., 2017; Yasnolob et al., 2018; Innovation outsourcing, 2021; Innovation outsourcing, n. d.; Buniak, 2021). Focuses on applied issues of outsourcing practice, in particular, on the development of outsourcing strategies, methodological ensure for making managerial decisions on their development (Loh, 2005; Kehal, Singh, 2006; Morhulets' et al., 2020), and on the justification of the choice of outsourcing service providers (Cui et al., 2011). A wide range of research characterized by the study of the issues of types of innovative outsourcing, which can be viewed through the prism of a dialectical combination of the general and the particular. In this area, in the literature (Loh, 2005; Kehal, Singh, 2006; Lysyuk, Tereshchuk, 2016; Ratynskyj, 2018; Saiensus, 2018; Cruz, 2020; Hutareva, Havrylova, 2021; Makovoz, Zaytseva, 2021; Different Types of Outsourcing Explained, 2021; Gallimore b, 2022; Miszewski, 2022; Aashish, 2023; et al.) presents different

approaches to the identification of types that cover various aspects of outsourcing practices of innovative companies.

A number of methods forms the methodological basis of the study: scientific description, abstraction, theoretical generalization, induction and deduction, decomposition and structuring. The dialectical combination of the general and the particular is of great importance, which reflected in the organic consideration of factors inherent in outsourcing in general and specific determinants due to the specifics of innovation activity. This is due to the understanding of innovative outsourcing, on the one hand, as a type of outsourcing practice, and on the other hand, as its dominant manifestation in terms of the growing trend of countries' transition to an innovative development model. The use of these methods will contribute to the development of the concept of innovation outsourcing management, deepening the holistic understanding of the factors influencing the management decisions on the choice of outsourcing strategy by innovation-oriented companies.

**Results and Discussion**

The modern practice of outsourcing activities in the area of innovation characterized by a variety of forms of manifestation, which is associated with the influence of a significant number of factors, the consideration of which in the management process will contribute to the achievement of the goals of innovative development through realization options for using the services of external providers while neutralizing/minimizing possible threats of negative consequences. The study of the factors of using outsourcing involves a comprehensive study of the aspects of the company's innovation activity (internal and external), possible co-evolutionary or multidirectional influence, a specific combination of environmental factors that will determine the level of accessibility, realization of benefits and the level of risk acceptable to the company when engaging outsourcers in the implementation/management of the company's innovation activity.

In the process of justifying managerial decisions on the use of outsourcing, first and foremost, the question of the expediency of transferring secondary, non-core, routine functions and tasks of business activities to external providers is primarily considered,

which allows focusing on the implementation of the main business processes in the company's innovation area related to key, system-forming competencies. These competences, according to scholars (Leonard, 1992, Prahalad, Hamel, 1994) are the basis for the formation of competitive advantages; a set of knowledge that embodied in the knowledge and skills of employees; technologies; processes of knowledge creation and management that integrated into the management system, and related values and norms. It is believed (Quinn, Hilmer, 1994; Saiensus, 2018) that core competence areas are formed by stable knowledge/skills; flexible, long-term platforms; unique resources in the value chain; areas of company dominance; and elements strategically important to customers. Other activities can be outsourced. Of course, the identification of key areas for internal specialization and secondary operations for external execution within the framework of a rational division of labour based on a comprehensive inventory, assessment of the components of the company's innovation management system according to a set of defined criteria.

The above factor of using outsourcing practices in the innovation sphere logically linked to the opportunity for companies to save resources. In particular, outsourcing can be a powerful tool for reducing costs while ensuring quality, through providers taking advantage of economies of scale. Thus, it helps to reduce innovation costs by 60-90% (Quinn, 2000; Innovation Outsourcing, 2021; Trung, 2022), including labour costs by up to 70% (Gallimore b, 2022), which allows to prioritize in budgets where necessary. The example of one of the F500 companies, which spent a million dollars a year to develop its own project management system, which it found inadequate, is illustrative. After replacing their internal software with outsourced software developed by DealRoom – at 1/8 of the cost – the customer doubled their productivity (Patel, 2022).

Outsourcing makes it possible to save money on the selection, adaptation and retention of permanent personnel, their training, the development of the necessary infrastructure, research facilities, certain materials, their delivery, other related costs, optimization of tax payments, etc. Outsourcing innovation can provide access to a variety of resources and skills without increasing the budget, which is important when there are resource constraints.

Solving the problems of resource provision through outsourcing is especially relevant for small innovative businesses, which usually suffer from a lack of funds and competition from large businesses. It should be noted that this problem becomes very acute when implementing risky innovation projects with a high level of novelty, respectively, with significant costs for commercialization of innovations. Outsourcing can help to ensure the realization of those functions/business processes that lack the necessary material and technical base; an effective organizational structure for innovation management, organizational culture; qualified personnel, etc. For example, according to analytical data (Dilmegani, 2022), 54% of executives consider the lack of skills to be the biggest problem for their company. This may relate to a shortage of a wide range of competencies, especially specialists with unique knowledge, experience, know-how, etc. Outsourcing helps close this gap. In addition, when building cooperation with external providers on an ongoing basis, it becomes possible to form a reserve of the necessary personnel, both through access to the relevant outsourcer's personnel (who have the necessary competencies) and through training of the customer's employees. Also by researchers (Dilmegani, 2023) the option of outsourcing important technological innovations that are not unique to the market as a whole is proposed. Collaboration with external stakeholders can eliminate organizational risks, shortcomings in the management structure, and the inherent chaos of the innovation process. These points are of particular importance when using the services of "mature" providers that have significant developments, knowledge bases, experience, technologies, tools for developing and evaluating innovative solutions to outsourced tasks, freeing the customer from the need to develop them from scratch. Outsourcers, using their own developed platforms, can provide service support for custom-designed innovative solutions and their further improvement within the existing development potential.

Outsourcing service providers (depending on the model of cooperation) can be a source of fundamentally new ideas, as well as an impetus or tool for transformation processes in an innovative company. Such an external development driver is launched through restructuring and re-engineering of certain business processes of the customer's innovation cycle as a result of radically new ways of

performing outsourced tasks. To a certain extent, this will be facilitated by the development of inter-sectoral contacts as catalysts for the emergence of fundamentally new solutions.

In addition, outsourcing can help an innovative company to reduce failures and the risk of implementing innovative processes. It is believed (Dilmegani, 2022) that the costs of failed innovations are higher for internal innovation projects. Thus, risk mitigation is carried out by outsourcing certain stages/business processes of innovative projects, which are often more complex and risky. In certain circumstances, it is appropriate to obtain mature innovations from an outsourcer. Such new technologies, products, and services are already free from most of the initial mistakes and malfunctions – the so-called "childhood diseases" of innovation – and, accordingly, the risks associated with them. Thus, the involvement of external providers in the innovation process becomes important in the context of minimizing the loss of resources and time, given that, according to existing estimates (Patel, 2022, Trung, 2022), the failure rate of innovations is between 80-90%.

An important argument for involving external stakeholders in the innovation process is to reduce the time required for its implementation. The significance of this factor has a steady upward trend in the face of a steadily accelerating rate of moral obsolescence. Outsourcing certain functions/business processes of implementation and management of innovations, in addition to non-core operations (in particular, in nonlinear models; in the simultaneous implementation of several innovation projects, in case of their regular long implementation by internal participants; in case of lagging behind the established implementation deadlines) creates the basis for accelerating the innovation process, including by reducing the inertia inherent in corporate structures, resistance to changes and key decisions, and reducing decision-making time. Thus, creates opportunities for obtaining additional benefits when commercializing the results of innovative activities. According to existing estimates (Trung, 2022), through external cooperation with a suitable outsourcing partner, companies can reduce the development process by 30%-50%. This can be confirmed by the concrete result of using DealRoom's outsourcing services to automate verification requests and real-time collaboration, the implementation of which in

the customer's company can reduce the workload by 50% (Patel, 2022). This advantage is very important for innovative companies in the context of accelerating their entry into the market with new products or services and obtaining a kind of "carte blanche" over competitors to capture a certain market share.

Establishing close long-term cooperation with external participants in the innovation process, for example, in the organizational format of joint enterprises, consortia, strategic alliances or other forms of strategic partnership, offers ample opportunities to achieve additional effects, in particular, related to cost and risk sharing, and obtaining a synergistic effect in the implementation of innovations, subject to the balanced development of a model of cooperation and alignment of interests.

Building strategic innovation cooperation with other companies creates additional opportunities for development. It is believed (Innovation Outsourcing, n. d.) that interaction on an ongoing basis with partners who have a global network lays the foundations for entering new markets that are otherwise inaccessible. Such cooperation may also result in assistance in attracting new customer segments in the partners' industries.

The use of outsourcing strategies helps to increase flexibility in managing innovation activities. There is a view (McKinney, 2022) that the flexibility to increase or decrease innovation efforts (as needed) allows firms to respond quickly to changes in the market or business environment. This gives companies the opportunity to test new ideas without making long-term commitments. First and foremost, flexibility means involving personnel with specific competencies in the innovation process on an as-needed basis, which helps to significantly reduce operating costs. In addition, the outsourcing of certain functions/business processes/innovations creates the basis for freeing up certain internal resources to be used them to implement other innovative projects, for "parallelization" (Innovation Outsourcing, 2020) of projects, which allows testing more combinations of technologies and research on a larger scale.

The use of outsourcing is promising when considering innovative companies in terms of evolution at the growth stage. One of the common problems that outsourcing can help solve is team overload in terms of the growing (in the process of development) number and

scope of functions and tasks when scaling too fast. Using the services of external providers (in the vertical and horizontal context) will increase the efficiency of the innovation team (its "throughput") (Deshpande, n. d.), and avoid a set negative results of excessive dispersion in the realization of innovation projects. Among these consequences, one of the most important, according to practitioners (Agrawal et al., 2020), is a decrease in motivation, "intellectual and creative burnout" of innovation team members, which, from a strategic point of view, has a devastating effect on the expanded reproduction of innovations and the achievement of the system of goals of an innovative company. Relief from overloading through outsourcing increases the time for strategic management of innovation activities, accelerates and improves the quality and overall performance of internal participants in the innovation process.

A related effect of outsourcing practices is an increase in the level of orderliness, coordination, regularity of the control process, reporting on the implementation of innovation processes, which are necessary when monitoring the fulfilment of outsourcers' obligations and are often lost in the internal implementation of innovations. Thus, the regulated use of outsourcing increases the level of controllability and efficiency of innovation management.

Globalization processes provide significant opportunities for optimizing companies' innovation activities. The use of various types of international outsourcing (offshore outsourcing, nearshoring) with the transfer of functions and business processes from the country of origin to other countries allows to: reduce costs due to lower remuneration of outsourcers; gain access to world-class talents and competencies (through the selection of the best outsourcing service providers in the relevant segment of the global market); enter new markets; solve the problems of national cultural distance; ensure the uninterrupted innovation process (24/7) in the conditions of rapid moral obsolescence.

Of course, the decision-making to involve outsourcers in the innovation process to ensure the realization of the above opportunities to improve the efficiency of its management should be consistent with certain reservations, the neglect of which in management practice may offset the planned effects of innovative

outsourcing. Among such caveats, the following should be noted in the first place (Chou, Chou, 2011; Innovation Outsourcing, n.d.; Innovation Outsourcing, 2020; How to grow your business with innovation outsourcing, 2021; Dilmegani, 2022; Gallimore, 2022; Gallimore, 2023):

– increased bureaucracy – some innovative operations require additional certificates and compliance to ensure safety. Third-party companies can add these fees as part of their contract;

– creation of know-how – in the case of outsourcing, the process of acquiring the necessary know-how (which forms additional competitive advantages for the company) is complicated, since the performance of a part of functions/business processes is transferred to an external provider, and constant interaction with it, including knowledge exchange, is carried out. In the case of independent development, the scope of acquired know-how, which is usually kept as a trade secret, is much greater;

– confidentiality and processing issues – outsourcing of innovations can lead to patent problems and leakage of confidential information, which requires additional measures to protect the intellectual property of the participants in the innovation process;

– imitation – outsourcing increases the likelihood of copying the company's innovations, as the outsourcer can develop a similar product/technology/service for other companies;

– problems with the correct interpretation of the customer's tasks by the outsourcer – the final product may not fully include the company's original idea, the provider may be mistaken in understanding the company's market, which will negatively affect the scale of commercialization of innovations;

– disconnected communication and strategy – the lack of flexible, prompt and adaptive interaction between partners, a sufficient level of outsourcer's compliance with the requirements of implementing the customer's strategy can slow down the implementation of an innovative project and destroy its commercial success;

– acquisition companies – innovative enterprises can face issues when they are acquired by a larger company;

– control – compared to in-house innovation projects, control over outsourced projects is naturally lower (provided that the control

function is well established within the customer company). Another aspect of the control problem is the lack of sufficient knowledge about the use and maintenance of outsourced innovations;

– concealment – there is a possibility that the outsourcing partner will not be transparent about its costs and fees, which may affect the effectiveness of cooperation;

– quality problem – the priority focus on cost savings, in particular through the use of cheap labour (for example, in the case of offshore outsourcing, nearshoring), may be accompanied by a loss of quality of the resulting innovative product and a deterioration in the level of personnel motivation;

– time zone shift – in case of offshore outsourcing, the issue of coordination of working hours and operational communication may become a problem, which requires increasing the flexibility of the management process;

– organizational culture – an insufficiently developed organizational culture can cause problems of inability to cooperate, lack of trust in partners, which reduces the effectiveness of business cooperation;

– conflict in company culture – there is a possibility of failure to integrate the corporate culture of the client company and the outsourcing company if there are significant differences in national management models, cultural traditions, ethical standards, etc.

These warnings should be studied in conjunction with the benefits of innovation outsourcing for each specific innovation company, taking into account a combination of set internal and external environment factors to obtain a comprehensive view of the argumentation basis for making decisions on the involvement of external participants in innovation activities and determining the format of outsourcing practice.

**Conclusions**

The study confirmed the importance of using outsourcing by innovation-oriented companies in terms of growing trends towards intensification of innovation activities and intensified competition in the markets of knowledge-intensive products.

The considered factors of influence should be taken into account both when considering the possibility and expediency of using

outsourcing in the implementation and management of the company's innovation activities, and at the stages of selecting a provider in accordance with the needs and requirements of the customer company, preparing, concluding and implementing innovation outsourcing agreements with it. This will increase the validity of the formation and realization of the company's outsourcing strategy, the choice of a specific model of innovative outsourcing (with the cross-cutting, combined use of certain types of it according to various classification criteria), the development of organizational measures for its effective practical implementation to improve the efficiency of the company's innovation activities and strengthen its competitiveness.

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# PUBLIC-PRIVATE PARTNERSHIP AS THE BASIS OF UKRAINE'S INNOVATION STRATEGY FORMATION

https://doi.org/10.5281/zenodo.10436298

**Abstract**
*Drawing on global experience, the utilization of public-private partnerships has proven effective in fostering diverse forms of development, including innovation, technology, economy, and infrastructure. Numerous successful projects serve as evidence that the collaboration between the private and public sectors can address pressing issues and execute intricate, all-encompassing plans that would be challenging for either party to achieve alone. The key lies in establishing a balance of strengths and weaknesses within this partnership, enabling the joint implementation of selected projects. While the public-private partnership mechanism forms a foundational element for the country's logistics infrastructure development, the cause-and-effect relationship primarily hinges on the pace of progress in such collaborative endeavors, although this connection is not obligatory. In certain developed nations, there is a noticeable absence of practical collaboration between the private and public sectors in*

*project implementation. This lack is attributed to concerns about fostering corruption mechanisms and favoring the interests of specific participants, which contradicts the country's developmental objectives. In such instances, logistics infrastructure projects are executed through the public sector, and in some cases, they prove successful. While public-private partnership is not the sole means to ensure a country's development, it emerges as one of the most effective strategies when employed correctly. Moreover, being a versatile tool, it can address related projects concurrently without fixating attention on a singular objective, thereby achieving a genuinely comprehensive impact. Despite the evident drawbacks of public-private partnerships, these can be overcome through the establishment of a robust legal framework, a standardized relational system, and a clear delineation of rights and responsibilities. This approach facilitates the creation of relationships grounded in trust and equality. The significance of the chosen research topic becomes apparent during the formation of an innovative, effective influence of the public-private partnership mechanism on infrastructure development.*

**Keywords:** *public-private partnership, business structure, public sector, private sector, innovations, development strategy*.

## Introduction

The significance of innovations is steadily increasing each year, as their practical application enables a country to attain economic growth, explore new markets, expand its capabilities, enhance competitiveness, upgrade infrastructure, modernize business operations into a developed mechanism, and globalize logistics, among other benefits. However, achieving these outcomes necessitates a clearly defined innovation strategy for the country, pre-planned innovation projects, and the direct identification of participants who will support innovation activities.

For the effective execution of such endeavors, a public-private partnership comes into play, operating in the form of two sectors. The state, representing one of these sectors, plays a pivotal role by offering support for projects, providing financing, regulating implementation, exercising control, and ensuring adherence to all norms and rules. In essence, the state functions as a rational mechanism tasked with creating a conducive environment and all

necessary conditions for the successful implementation of innovative activities.

On the other hand, there exists the private sector, which constitutes a more creative component. This sector is crucial as it houses the primary processes of development, creation, and implementation of innovations. It relies on innovative ideas, modern mechanisms, the latest programs, and systems that extend beyond established norms, potentially giving rise to something radically new. The public and private sectors function akin to two hemispheres of the brain, each responsible for diverse functions. However, it is only through their collaborative efforts that a balance can be struck, and consensus can be reached in their visions and ideas.

**Materials and methods**

The first attempts at a full-fledged public-private partnership were based on project financing of mineral extraction in Texas in the 1930s, in Australia and other countries in the 1970s. In the early 1990s, infrastructure financing projects were carried out in Great Britain, which became a classic example of modern public-private partnerships. In 1978, the financing of energy projects gained importance in the USA, which gave impetus to the development of joint ventures that still exist today.

As you can see, even the already formed independent private sector could not fully function without state support, without its financing, and already on the basis of this, a mechanism of interaction was formed, which became an important factor in the implementation of significant projects. But the understanding of the importance of this interaction is not always reflected in practice, as evidenced by the share of financing relations based on public-private partnership in various countries: in Germany – 1%, the Netherlands – 3%, Italy – 5%, Spain – 8% [Atkinson, 2019], etc., which indicates that no country has an ideal mechanism for the interaction of these two structures and that these relations are only beginning to develop.

On the basis of these and other similar projects, a legislative definition of the interaction of the public and private sectors was formed in the law "On public-private partnership" (Law of Ukraine…, 2010), according to which public-private partnership is interpreted as cooperation between the state of Ukraine, the

Autonomous Republic of Crimea, territorial communities represented by relevant state bodies and local self-government bodies (state partners) and legal entities, except for state and communal enterprises, or natural persons - entrepreneurs (private partners), which is carried out on the basis of a contract in the manner established by this Law and other legislative acts.

According to the Ukrainian researcher E.L. Cherevykova "public-private partnership is one of the most promising mechanisms of innovative development, however, during its implementation, possible risks can be identified: risks of project delay; risks of land acquisition; risks of excessive costs; commercial; technological; operational and operational risks" (Pozniak, 2015).

It is important to highlight that in Ukraine, public-private partnership is exclusively conducted on a contractual basis, in contrast to other European countries where emphasis is not necessarily placed on this specific form of cooperation, and relations extend beyond it. However, this condition in Ukraine is not without reason or unnecessary, as the contractual approach serves to protect each party involved from unforeseen circumstances. It enables the clear and transparent definition of all necessary conditions under which the agreement will be executed.

In any scenario, this partnership should be mutually advantageous for all parties involved in the contract, offering benefits both to the state and private entrepreneurship based on jointly defined responsibilities, duties, and risks. The public and private sectors typically have divergent goals; the former aims to expand service scope, boost domestic goods turnover, establish relations with powerful states, and achieve parity with them, while the latter prioritizes maximizing profit. Despite these differing objectives, it is only through the collaborative execution of projects that significant results can be achieved. The correct delegation of functions by state entities to the private sector can effectively reduce project implementation costs, optimally distribute risks, and preserve benefits for each participating member (Figure 1.4).

The participation of the private sector in the collaboration enables the utilization of new methods, technologies, modern programs, and fresh ideas, contributing to an excellent overall perspective that can enhance the effectiveness of joint efforts. While the state operates

within well-defined frameworks, adhering to established norms, and relying on proven methods, private entrepreneurship serves as the "brainstorming" and "breath of fresh air" that facilitates viewing situations through the prism of innovative vision. This dynamic interaction provides the impetus for the successful implementation of innovative activities.

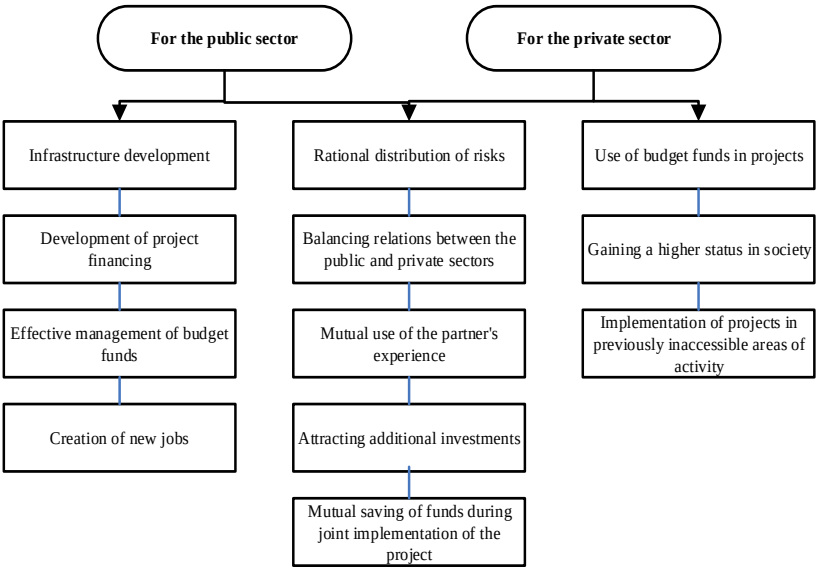


**Figure 1.4 Advantages of public-private partnership**

The development and adoption of innovations are frequently driven by necessity rather than a mere desire to enhance existing circumstances. For instance, transportation costs can account for approximately 24% of the cost of specific products in Ukraine (Grebennyk, 2011). Consequently, there arises a need to explore the latest technologies that can revamp the operation of the transport fleet, track optimal routes, monitor the entire transportation process to prevent deviations, and avoid additional costs. Numerous challenges exist in this domain, impacting not only the private sector but also the state as a whole.

The functioning of modern systems, the establishment of global networks of relations between states and individual enterprises, and the creation of integrated networks necessitate support in the form of innovation. In Ukraine, innovative activities primarily focus on achieving economic objectives such as cost reduction, increased productivity, and the transition to full automation. However, these goals are seldom intertwined with environmental solutions. Despite the assertion in the Law of Ukraine "On Innovative Activity" that the main goal of state innovation policy is to create conditions for the implementation of modern, ecologically clean, safe, energy- and resource-saving technologies, the practical integration of environmental considerations is not consistently a primary condition for attaining the desired objectives (Law of Ukraine…, 2002).

At the same time, there is uncertainty regarding the specific organizations, institutions, enterprises, or their combinations that should be engaged in innovative activities in Ukraine. It remains unclear who precisely serves as the customer for these new initiatives, who acts as the direct executor, and which projects should embody the innovation strategy.

The Law of Ukraine "On Public-Private Partnership" lacks provisions related to innovative activities, preventing the establishment of a direct connection between these crucial components. This omission is problematic, as it is through such partnerships that we can address the proper organizational, legal, financial, personnel, and other aspects required for fostering innovative activity in the country.

**Results and discussions**

Despite the abundant opportunities available to our country for fostering innovation, there is a discernible decline in scientific and technical potential. A significant contributing factor is the scarcity of active enterprises in Ukraine that, in addition to their primary activities, engage in independently initiated developments of international significance for the state. Generally, such developments are commissioned rather than initiated proactively, and non-innovation-focused companies and structures may establish IT departments within their own expertise but exclusively to meet internal organizational needs. The situation is further influenced by

the concentration of the majority of scientists in educational and training institutions rather than in production.

As evident, the proportion of enterprises actively engaged in developing or implementing innovations within their operational activities is relatively small. A concerning trend is that the share of companies successfully implementing these developments is much smaller than those involved in their creation. This implies that a notable portion of newly developed innovative products does not find practical applications. Such a situation not only impacts companies aspiring to be innovative and proactive but also diminishes their inclination toward sustained growth.

This situation casts a negative light on the approach to innovation not only within the private sector but also within the state. Many companies are reluctant to invest their own efforts and funds in innovative activities due to a lack of understanding of the potential opportunities, focusing solely on economic benefits. Simultaneously, the state fails to establish a clear mechanism or plan that companies can orient themselves toward, providing no guarantee of success and lacking a formula for minimizing risks. Consequently, there is a deficiency in conditions that would incentivize the private sector to explore and embrace new ideas and developments.

This dynamic illustrates the stance of each sector towards the establishment of innovative activities in the country. As observed, the financing, theoretically expected from the state, is predominantly shouldered by companies using their own funds, as they are the most vested stakeholders. Funding for developments, applied research, innovative products, and modern programs from the state budget is notably limited, hindering the progress of public-private partnerships in the country and preventing the maintenance of an adequate level of innovative potential.

In the future, the genuine advantages of the state, stemming from its geographical location, available capacities, developmental opportunities, and more, will be delineated in specific technological, technical, innovative, economic, and social plans. This approach will enable the true significance of the logistics sphere for Ukraine to be emphasized, incorporating numerous elements such as infrastructure, culture, energy, sports (Figure 1.5).

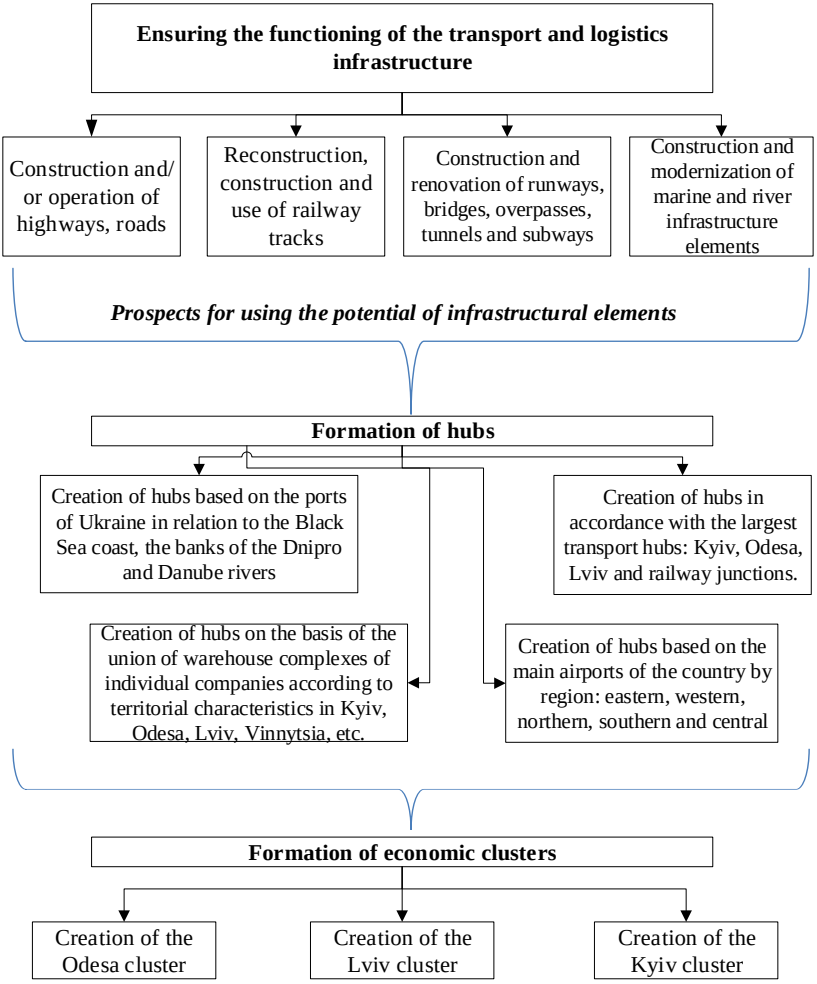


**Figure 1.5 Impact and consequences of public-private partnership in Ukraine**

## Conclusions

As evident, the restoration and modernization of ports, roads, railways, and airports using new technological solutions can enable the division of logistics in Ukraine into functional sectors. This

facilitates optimal organization within the business sector, streamlining logistics procedures in terms of both time and finances. Although Ukraine possesses a strong foundation for the development of internal and external communication networks, the existing infrastructure poses challenges for operational flexibility. Barriers such as poor-quality roads, inadequate technical and technological support for ports, and the non-compliance of many railway tracks with European standards impede the necessary pace of development.

Indeed, stable and dynamic improvement can only be achieved after addressing and strengthening all the "bottlenecks" in the logistics infrastructure. The demarcation of logistics hubs and the subsequent creation of clusters based on them may vary from the proposed model; however, these formations will undeniably emerge as strategically important and promising areas of activity for both the private and public sectors.

By leveraging the existing potential and strategically targeting the influence of both state and private entities, it becomes feasible to establish an excellent foundation for the comprehensive development of logistics activity. The mutual synergy between logistics and innovative activities will foster a robust and favorable environment for the functioning of both businesses and the private sector. Through their collaborative efforts, these sectors can propel the country into an era of progress and advancement.

In conclusion, it can be observed that the current period may not be the most conducive for innovative development, despite the pressing need for it in our country. While Ukraine still possesses untapped innovation potential and has its own national innovation system, it lags significantly behind the innovation systems of more developed countries, preventing it from reaching their level. This is evident in Ukraine's unpreparedness for public-private partnerships; whereas in other countries, this system of mutual relations is already well-established and clearly defined by law, in our country, it is still a work in progress, reflected in projects that are not yet as significant or impactful for the overall state.

Absolutely, no country aspiring to be strong, independent, and self-sufficient can thrive in isolation from other states. Similarly, individual companies cannot operate within their own isolated systems. For effective existence, there needs to be a connection with

other companies, structures, and organizations. By forming an extensive network, these entities aim to coexist with others for mutual benefit and the common good. It is through such interaction and collaboration that the desired synergy can be achieved.

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## Chapter 2

# THE USE OF MARKETING AND LOGISTICS TOOLS TO MANAGING THE DEVELOPMENT OF ECONOMIC SYSTEMS

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## ECONOMIC SECURITY OF ENTERPRISE LOGISTICS PROCESSES: FOREIGN AND DOMESTIC EXPERIENCE

https://doi.org/10.5281/zenodo.10436306

**Abstract**
*The article is dedicated to a scientific exploration of innovative technologies in the context of ensuring the economic security of logistics processes in an industrial enterprise. The content of the category 'technologies in economic security' is determined. The article discusses issues related to blockchain technology and how it operates. The main advantages of the innovative blockchain technology are highlighted, and examples of using artificial intelligence in the field of logistics are provided.*

**Keywords:** *enterprise economic security, economic security technologies, innovative technologies, blockchain, artificial intelligence, logistics processes.*

### Introduction

Currently, the intensification of competition in the markets of goods and services is changing the perception of the category of economic security. Increasingly, the emphasis on the protection of information, property, property rights and other components, associated with the need for legal and physical protection of assets, is inferior to such relatively new economic categories as the ability to

develop, dynamism, flexibility, adaptability, viability, resilience etc. As a result of the unformedness and unpredictability of the development of the domestic logistics market, its lack of transparency, the criminalization of business, the imperfection of the legislation, the abuse of shareholders' trust by officials, as well as the influence of martial law, there is a threat to the economic security of the operation and development of logistics entities.

In the conditions of martial law, a large part of the subjects of logistics activity are unable to ensure a sufficient level of their own economic security. In order to maintain their economic stability and rhythmic work, they need to implement not only functional, but also structural management solutions. In order to solve this problem, it is necessary to implement innovative approaches to conducting logistics activities.

The use of modern technologies to ensure the safety of logistics processes of an industrial enterprise ensures the timeliness and detail of information for the purpose of managing flow processes in complex economic systems, provides an opportunity for in-depth analysis, modeling of logistics processes and forecasting prospects for their development.

**Materials and Methods**

Investigation and development of technologies for ensuring the economic security of logistics processes and concepts related to it have become the subject of scientific research by domestic and foreign scientists, including: O. Arefieva, T. Vasyltsiv, N. Havlovska, I. Golikov, Ya. Nazarenko, A. Nikitina, V. Prokhorova, A. Pulim, S. Saloid, G. Tkachuk, V. Tulchynska, O. Halina, A. Shtangret, O. Shumilo, E. Sarmin, R. Skalyuk, S. Naydyuk.

We believe that the algorithm for studying technologies to ensure economic security has not been considered fully enough. In addition, information on the enterprise's economic security technologies needs to be systematized.

The mechanism for ensuring the economic security of the logistics processes of an industrial enterprise has an appropriate toolkit, which consists of technologies and protection tools.

According to the Great Explanatory Dictionary, "technology is a

set of methods of processing or processing materials, manufacturing products, carrying out various production operations, etc" (Busel, 2004).

Technology as a science – "... is the detection of... regularities with the aim of determining and using in practice the most effective and economical production processes".

It is worth agreeing with Tkachuk H., who says that the current system for ensuring the economic security of logistic processes should be guided by the following groups of core technologies: threat identification technologies, enterprise economic security system testing technologies, danger class assessment technologies from possible threats, and threat and danger protection technologies (Tkachuk, 2019).

The use of basic technologies guarantees the fulfillment of the main tasks of the system of economic security of the logistics processes of an industrial enterprise:

– detection and identification of threats and dangers of logistics processes;

– assessment of the degree of risks and dangers of logistics processes;

– assessment of the capacity of the economic security system of an industrial enterprise;

– protection of logistics processes of an industrial enterprise from real threats of the external and internal environment and their consequences.

The implementation of core technologies involves the use of the so-called logistics process support technologies, which include:

– technologies of accounting and analytical support. The accounting and analytical system of an industrial enterprise is the basis for the collection, accumulation, processing and transmission of information in the management system;

– technologies of internal economic control. The presence of an extensive internal control system ensures the timeliness and reliability of information used in basic technologies (Tkachuk, 2019);

– technologies of information and communication support.

It should be noted that "information technology (IT) is a systemically organized set of methods and means of implementing

operations of collection, registration, transmission, accumulation, search, processing and protection of information based on the application of advanced software, the use of computer equipment and communication, as well as methods by which information is provided to those who need it";

– management technologies. Management technology means "techniques, order, regulation of the management process. Management technology consists of informational, computational, organizational and logical operations performed by managers and specialists of various profiles" (Proskura, 2014).

In our opinion, the model of security technology of logistics processes of an industrial enterprise, which can be called basic, should consist of the following elements:

– formulation of the goal (functional task) of the technology;

– determination of the constituent elements at the entrance and their parameters;

– selection of means of support (technical, methodical, organizational, personnel) and requirements for their application;

– drawing up a description of the algorithm of the selected technology;

– identification of responsible persons and measures for the preservation of commercial secrets;

– expected output result and its parameters.

In our opinion, the technologies for ensuring the economic security of the logistics processes of an industrial enterprise represent the integrity of certain ordered processes that are carried out with the help of certain technical, innovative, organizational techniques to achieve the established goal.

Using the above-mentioned basic model, it is possible to explain the importance of any technology in the system of ensuring the economic security of the logistics processes of an industrial enterprise and build its algorithm.

Figre 2.1 presents the features of the application of technologies of logistics processes of economic security of an industrial enterprise.

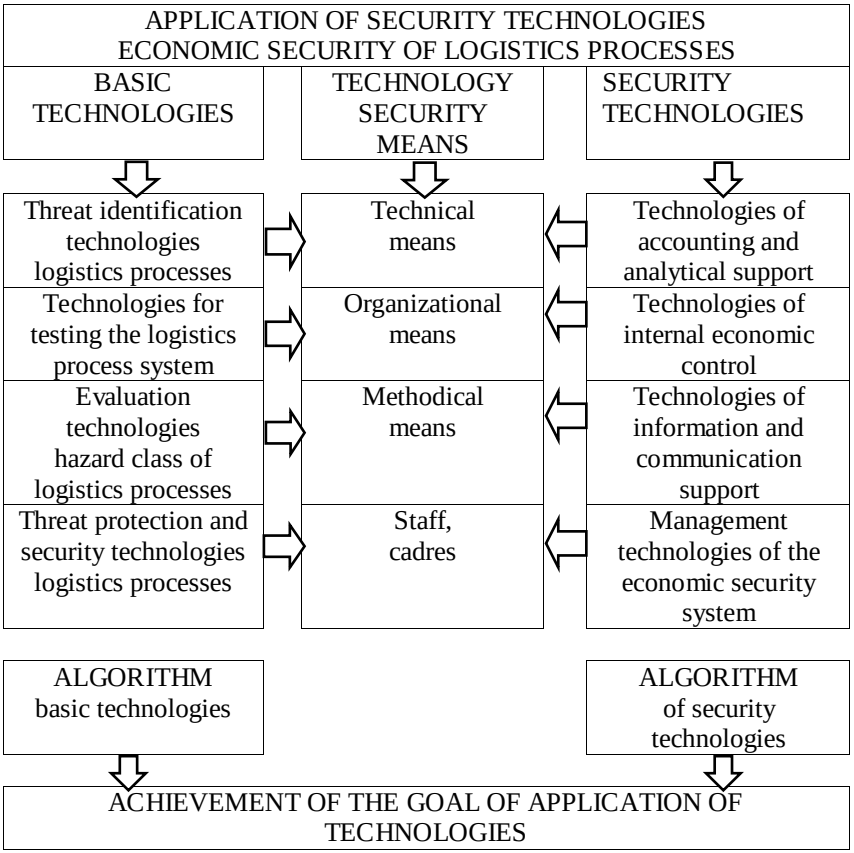


**Figure 2.1 A generalized scheme of application of technologies of the system of economic security of logistic processes of an industrial enterprise**

*Source: compiled according to (Tkachuk, 2019)*

**Results and Discussions**

The novelty of this research lies in the expansion of scientific interests in the application of technologies in the system of ensuring the economic security of the logistics processes of an industrial enterprise through the introduction of basic technologies, the main task of which is to ensure the implementation of the main goals of the system of economic security of the enterprise, and security

technologies, the functional task of which is to ensure the fulfillment of tasks of basic technologies.

The results of the conducted scientific research are of practical importance and can be applied during the formation of an effective system for ensuring the logistic processes of the economic security of an industrial enterprise in the real sector of the economy.

According to A. Pulyma, the introduction of innovations contributes to achieving the required level of economic security for the logistics processes of an industrial enterprise only when this process is continuous, all-encompassing, regardless of ownership, status, scale, and types of activities. In addition, innovative technologies for logistics processes should entail a continuous, systematic, and renewing process, allowing organizations to protect and strengthen their positions in the competitive market, which directly affects the overall level of economic security of the industrial enterprise, its stability, and development (Pulym, 2020).

Digital technologies have become an integral part of the modern world economy and society, and their wide application, significant impact on economic and social processes, and rapid development led to the appearance of new terms, in particular, “digital economy”, “digital society”, “digital transformation”. Digital technologies are innovations that require investment in their development, implementation and further use. In the process of researching the investment attractiveness of specific digital technologies, it is necessary to take into account their constant change, development, etc. One of the areas where digital technologies have been widely used for a long time is logistics. A number of digital technologies can be used in logistics processes, which, interacting with each other and with a person, can significantly influence the result of the functioning of such systems. a competent combination of various digital technologies in order to increase the efficiency of other tasks of the logistics system can be considered as one of the tasks in ensuring logistics processes (Tkachuk, 2019).

The topology of digital technologies, which is the main functionality of digital logistics, includes Big Data (Processing of big data and analytics), IoT (Internet of Things), Blockchain technology (Blockchain – a register of distributed transactions), Cloud services, eSCM, 3DPrinting and others. World experience has shown that one

of the most promising directions in the information provision of economic security of logistics processes of an industrial enterprise is the use of Blockchain technology.

Blockchain is a modern technology, and many scientific works related to its work have been written by authors who are also the creators of this program and work with it. Foreign scientists and practitioners, in particular A. Tapcott, M. Casey and P. Vigna, M. Swan, K. Skinner, in their works examine Blockchain, the operation of which has been verified at their own enterprises. N. Popper's work "Digital Gold" was included in the list of the best business books of 2015 in the Financial Times rating. The author reveals the idea of creating a bitcoin payment system, which gradually attracted the attention of the whole world. The head of the association "Blockchain. Community" A. Fork in his book "Bitcoin. More than money" describes the history of bitcoin's development and distribution in the world, highlights technical features, gives examples of application in some theoretical financial hypotheses. A. Antonopous, a member of the boards of directors of several bitcoin startups, in his work "Mastering Bitcoin: Unlocking Digital Cryptocultures", which is a kind of instruction on working with the blockchain (Proskura, 2014).

Blockchain is a mathematical algorithm that allows private and secure exchange of data between neighboring networks, i.e. peering networks (from the eng. peering – neighborhood). The main task of blockchain technology is a sequence of blocks with information about each transaction, which is stored in each unit of the computer network. Blockchain provides reliable and effective data protection, transparent and tamper-proof information exchange. The information entered into the system can be changed, and its storage is carried out without centralized management (Moklyak, 2018).

Blockchain contains not only the current set of data, but also the complete history of transactions. The method of building and operating a blockchain has a number of advantages compared to a classic electronic database.

The advantages of using the blockchain system include:

1. Decentralization, that is, the entire network is used and not just one computer (organization, person, etc.). In this case, even if one or more computers (persons) cannot perform any functions (liquidated,

arrested, etc.), others store this information, which complicates hacker attacks and forgery of information (although no one is immune from this);

2. Provability of each transaction: there is cryptographic confirmation of each transaction, record, etc. In particular, keys are private (belonging to a specific person) and public (which can be used by all users of this network), that is, if there is one person or one computer;

3. Transparency (public access): anyone and at any time can see what operations exactly were carried out;

4. Security: information is stored using cryptography;

5. The impossibility of making changes to the "signed" block: the information that entered the blockchain is verified and if the verification is passed, a kind of "seal" is placed and this data is synchronized between all participants, from this moment the information cannot be changed;

6. Computational logic: the digital nature of the ledger works in such a way that transactions on the blockchain can be tied to computational logic and can actually be programmed, allowing users to customize algorithms and rules for automatic transactions between nodes.

Smart contracts are computer programs that perform the function of implication, and yet, Blockchain ensures the automatic execution of such contracts without human intervention. For example, smart contracts can monitor the fulfillment of conditions in long-term loans. A smart contract can update data on the Blockchain according to specified rules, such as transferring digital assets from one participant to another.

Among the disadvantages of this technology, the speed of operation can be highlighted, which significantly lags behind traditional databases due to the cryptographic component that provides crucial advantages but has computational complexity. The throughput of the Bitcoin system is only seven transactions per second, which is extremely low compared to the two thousand operations per second processed by the VISA payment system.

The generalized rules of blockchain operation are shown in the Table 2.1.

*Table 2.1*

**Rules of blockchain operation**

| Rules of operation | Characteristic |
|---|---|
| Distributed Database | Each party in the Blockchain has access to the entire database and its complete history, meaning no one party controls the data or information, and each party can verify the records of their transaction partners directly, without an intermediary. |
| Peer Block Transfer | Communication occurs directly between peer blocks and not through a central node, i.e. each node stores and transmits information to all other nodes. |
| Use of encryption technologies | Anyone with access to the system has the ability to track each transaction and the value associated with it, meaning each node or user has a unique alphanumeric address containing 30 characters that identifies it. Users can choose to remain anonymous or provide proof of their identity to others when transactions occur between blockchain addresses. |
| Irreversibility of records | Once a transaction is entered into the database and the accounts are updated, the records cannot be changed because they are linked to each previous transaction record. Various computing algorithms are available to ensure consistent, chronological ordering and accessibility to all others in a network of database records. |
| Computer logic | The digital nature of the ledger means that blockchain transactions can be tied to computer logic and can essentially be programmed, meaning users can set algorithms and rules and automatically trigger transactions between nodes (such as smart contracts). |

*Source: compiled according to (Mazurenko, 2019; Iansiti & Lakhani, 2017)*

The use of blockchain in the provision of logistics processes is a promising way to increase the efficiency of international deliveries, minimize risks, and reduce costs. With the help of the platform, you can increase the reliability and transparency of deliveries and avoid discrepancies in documents.

For example, such projects as Cargocoin, BitNauticMorpheus, Network, which claim that they will be able to solve the problems of logistics, by water, land and air, because until now in this field everyone works in the old way with a bunch of papers and so on, and

here everything will be on smart contracts plus without intermediaries.

Increasing the reliability of data, which is introduced by innovative technologies, can also pave the way for artificial intelligence in the field of ensuring the economic security of the logistics processes of an industrial enterprise. Digitization of transaction data is becoming more secure and widespread. This allows artificial intelligence to take over the main, technical tasks.

Artificial intelligence (hereinafter – AI) is a powerful tool for ensuring information security of logistics processes in conditions of military conflict. It can be used to analyze large volumes of data collected from various sources.

As the world's logistics requirements continue to become more complex, big data-driven applications are already being deployed to streamline logistics on a global scale. The impact of data-driven and autonomous supply chains enables unprecedented levels of optimization.

Intelligent and automated warehouses. The automated and intelligent storage system is fully capable of moving, lifting and sorting goods, which are then packed and shipped by workers. This coincides with experts' predictions that multiple operations in logistics and warehousing will be fully automated around 2030. An analysis of the work of leading UK logistics companies indicates that 30 percent of warehouse jobs will become fully automated within the next few years (Skitsko, 2018).

The end result of automated warehousing is computer vision. This is where AI will learn and evolve in the field of operational improvement. Soon, computers will be able to recognize and perform inventory and even duplicate quality control for various inventories without the need for human supervision. If a company has more than one warehouse, the AI in each location will be able to communicate with each other to find the best logistics solutions (Antonopous, 2017).

**Conclusions**

However, given the rapid use of AI technology in many fields, it should be noted that it is not a completely safe technology and has its drawbacks. Worries about job cuts, to begin with. At the same time,

however, global markets are still struggling with significant labor shortages that companies will face for many years to come. And according to Samsung Electronics Vice President of Innovation Luca Julia, machines using AI need to collect a large amount of data to form any model. They are not able to show creative abilities, as a person does, but can only recognize. Nonetheless, there is no doubt that AI technologies will continue to play an important role in the logistics industry in the future, and businesses that are to recive this technology will be better positioned for long-term success.

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## ANALYSIS OF MODERN APPROACHES AND PROBLEMS IN CITY BRANDING

https://doi.org/10.5281/zenodo.10436312

**Abstract**
*Over the past thirty years, there has been a transition from city marketing to city branding, when the city brand has been perceived as a means to achieve a competitive advantage in order to increase domestic investment and tourism, to achieve community development, strengthen local identity and identify citizens with their city.*
*The author describes the impact of mega-events on the development of brands of individual cities, analyzes modern interpretations of cities both in terms of productivity and attractiveness. The author proposes to*

*analyze the attractiveness of a city by evaluating its brand, so that its effectiveness can be compared with the ratings of different cities around the world.*
*The analysis identified the main problems in developing city brands: a large number of stakeholders, limited internal support and time delays; substitution of a brand with an identity that is only a visual part of it; difficulties in securing sufficient funding; organizational issues and lack of authority for management; operational level problems in marketing communication campaigns and in transferring brand identity to product experience; poor awareness of the situation resulting from poor monitoring and*
*Solving these problems will allow the city to create and maintain sustainable competitive advantages.*

**Keywords:** *brand, city branding, mega-events, image, identity, local communities.*

City branding provides, on the one hand, a basis for developing economic development policies and, at the same time, serves as a channel for residents to identify with their city. City branding is becoming a powerful competitiveness tool to withstand the growing competition for resources, investment, tourism, and to address acute social issues, such as cultural diversity. It is also a powerful tool for potentially influencing the way city residents associate themselves and feel about their city. It is based on a combination of urban marketing activities and components of city brand management.

The authors *(Zhang L., Zhao S., 2009)* described city branding as a common practice in the context of intensifying urban competition for mobile resources, markets, opportunities, and attention. This definition considers city branding not only as a practical tool for urban marketing, but also as an effective advantage in competition with other cities.

Speaking about city branding, scholars *(Balencourt A., Zafra A., 2012)* argue that it has many advantages in marketing strategy, especially when it comes to the external image of the city. The greatest interest in branding is developed in the field of tourism marketing, which seeks to promote places as tourist destinations.

Michalis Kavaratsis believes that there is no generally accepted definition of a city's brand. From the perspective of the local

community, city branding indicates a significant change in all marketing efforts. Slogans and logos are developing practical tools for city branding, but these visual tools alone are not a brand strategy *(Kavaratzis M., 2004)*.

If analyzed in the historical context, the application of urban marketing methods to city management and the formation of cities as brands in the early 90s was quite justified, as it allowed mobilizing new resources in the form of ideas, capital, and local knowledge. Thanks to urban marketing, a new level of local government policy was developing, which included a strategic approach to community planning involving the private sector. Local authorities endorsed the use of marketing to attract domestic and foreign investment, employment, and communication between citizens as customers and government agencies as service providers. At this stage, advertising and self-promotion, as the most prominent elements of external marketing, were and still are the easiest way to promote the city as a brand.

Since 2000, the study of city brands and branding has been closely linked to two other concepts that are of great importance to city residents and urban communities. First, there is the issue of city identity. While there is a general consensus that one of the most important assets of cities is their local character and identity, cities have become similar, unified, and progress has diminished local flavor. That is why city branding can reverse this trend, as it is largely based on the differences between cities. Especially useful at this stage is the study of the organizational structure of the city, which emphasizes the participation of the community in its creation and development.

The second issue is the notion of "communicative value" of products/services, especially brands, because modern consumers do not buy goods for their consumer value, but rather for their communicative value to satisfy their desire to become part of a community. Cities have always been and remain places of community, and in this sense, city brands should simultaneously serve a person as an individual and unite them with a group.

Among architects, urbanists, urban designers, landscape scientists, and marketers, three main techniques have always been in vogue:

– personalized branding or the "Gaudi gambit" after its success in Barcelona, which emphasizes the city's connection with the architect Antoni Gaudi *(Kavaratzis M., 2004)*;

– flagship construction or "Pompidou's trick" after the implementation of a grandiose project to build the National Center for Arts and Culture named after Georges Pompidou in Paris;

– event branding.

Initially, these techniques were not created to become key in shaping the city brand, but reality has shown that they have the greatest impact on it. All of them are designed not only to attract attention and get to know the city, but also to create associations between the city and attributes that are considered useful for its economic or social development.

Mega-events are an important marketing approach for the development of city branding; they bring great benefits to cities, which are not only material. That is why a considerable amount of research has been devoted to the links between mega-events, which have many additional effects, and the images of megacities *(Balencourt A., Zafra A., 2012; Kotler P., Gertner D., 2002; Anholt S., 2010)*.

The interest in such events is caused by the measurement of the impact of the XV Winter Olympic Games held in Calgary in February 1988 on the awareness of the region over four years, from 1986 to 1989 *(Brent J.R., Smith B. H., 1991)*. This study focused on the social impact of the mega-event, which is related to city planning and image.

In 2014, Li and Gretton studied the 2009 World Games and the city of Kaohsiung and tried to find a link between sporting events and the city's image *(Lee Cheng-Jong,2014)*. The researchers analyzed three variables: sporting mega-events; city brand awareness; and city brand image. The authors evaluated the city's image by its attractiveness, characteristics of the residents' lives, environmental and urban culture, and travel experiences.

Researchers *(Zhang L., Zhao S., 2009)* consider Beijing and the Olympic Games as research objects and apply the brand index to measure people's perceptions to measure people's perceptions based on Simon Anholt's model *(Anholt S., 2007)* (Table 2.2).

*Table 2.2*

Aspects of people's perception of the city

| Aspects | Meaning |
|---|---|
| Presence | International status and authority of the city; global contribution of the city |
| Place | City appearance and physical characteristics (clean environment) |
| Potential | Opportunities for future development |
| Rhythm | Lively and exciting city lifestyle with many interesting activities for residents and visitors |
| People | Friendliness, openness, cultural diversity and safety |
| Prerequisites | Basic city infrastructure and landscaping |

*Source: (Anholt S., 2007)*

One of the main challenges for city administrations and city marketers is that they face a multitude of target audiences and stakeholder groups. All actions related to the economic, cultural, social, tourism or any other aspect of the city's development are carried out on behalf of the city's residents, with the ultimate goal of improving the quality of life. Therefore, when developing a brand, the main focus should be on the city's residents, but this does not mean that other target audiences (tourists, business visitors, investors, etc.) are less important.

The author *(Graham B., 2002)* presents an approach to the formation of city branding based on the interaction of the "external" and "internal" city. The study is based on the realization that all encounters with the city take place through perceptions and images. It is the image of the city that needs to be planned and then it will be sold. Everything that a city consists of, what happens in it, and what it offers to visitors and residents conveys a message about its image. All interventions or areas of activity that are included in the structure of the city, in the context of branding, have both functional and symbolic meaning; this is the main idea that distinguishes the analyzed approach and demonstrates the differences between marketing activities and brand solutions.

The image of a city is conveyed through three different communication methods: primary, secondary and tertiary. Primary communication is informal, it refers to the city's communicative actions and is divided into four broad areas of influence:

1) landscape strategies: relate to urban design, architecture, cultural heritage, green spaces, and all public places in the city;

2) infrastructure projects: refers to projects designed to create, improve all types of infrastructure needed in the city. This element of the structure is related to improving the accessibility of the city for different audiences, the main attractions for visitors, the availability of a large airport/port/stations, the sufficiency of various business facilities (cultural centers, conference halls, exhibition areas, etc.);

3) organizational and administrative structure refers to the effectiveness and improvement of the city's management structure, it is a continuation of public-private partnerships that are included in the practice of urban marketing. At the same time, the organizational structure is one of the main components of corporate branding, a component of corporate identity;

4) the most important elements of this category will be community development networks and citizen participation in decision-making, as well as the establishment of public-private partnerships. The organization of marketing and branding itself falls into this category. City "behaviour" refers to issues such as the vision of the city by its leadership, the chosen strategy, financial and other services provided by the city to various stakeholders, the efficiency of their provision, and the number and level of events (festivals and other cultural, sporting, or entertainment events) organized in the city.

This approach, in the author's opinion, provides a sufficiently complete basis for understanding the multifaceted process of shaping the city's image and managing its brand, as it allows combining urban marketing practices, strategies based on mega-events, cultural revitalization, and includes basic services and financial indicators. Of course, the list of factors that shape city brands is constantly being supplemented, and it is not and cannot be exhaustive. Its formation in a specific place and time requires the skills, innovation and imagination of every urban marketing specialist, urbanist or public manager to enrich it with new ideas, practices and methods.

Secondary communication is a formal communication that takes place through well-known marketing practices: internal and external advertising, public relations, graphic design, logo use, etc. It is a component of the traditional marketing mix; most cities that want to

create their own brand use it only. This is where the main problems in brand development lie. City marketing specialists consider secondary communication to be brand development, the brand itself, but this is not the case, it is a simplistic approach, because secondary communication must be fully coordinated with the other components, and must be in full harmony with the reality of the city, where different audiences come together. Secondary communication relies on the city's communicative competence, which is both the goal and the result of the city branding process. That is, the content of secondary communication is the most important factor in the development of city branding.

Tertiary communication refers to oral communication, which is supported by the media and competitors' communication, has little to do with the other components and is beyond the control of marketers. The entire branding process and the other two managed types of image communication are intended to elicit and reinforce positive tertiary communication. This is especially true for city residents, who are both the most important target audience for city branding and the most important marketers of the city.

If earlier the city's branding helped to increase the pace of development, was determined by physical characteristics, in particular, location, and the urban planning industry, nowadays the city's brand is created by the cultural environment, people, innovations, experience, and ideas that contribute to the spread of the city's image. The famous Philip Kotler clearly pointed out four reasons for city branding:

1) increased competition, adaptation to a rapidly changing environment;

2) urbanization;

3) the development of the tourism industry, when cities began to create factors that favor the development of tourism and strengthen the competitiveness of a particular territory;

4) globalization and advertising, when cities receive additional sources of income through advertising, coverage of mega-events, ticket sales, and the growth of the restaurant and hotel sectors *(Kotler P., Gertner D., 2002)*.

As we can see, the focus of city branding has changed over the past decades.

At the national and international levels, the branding process is carried out through cooperation between departments, ministries, local authorities, non-governmental organizations, and companies that also promote their version of the country and cities in it.

We will consider the problems of branding cities and urban areas using the analysis of the best international practices.

In the author's opinion, modern cities are complex systems that cannot be viewed only from the perspective of one area of activity. Ukraine is characterized by an approach where the image of the city is shaped only by architects (with an emphasis on the design of buildings without reference to infrastructure) or transporters (focusing on road capacity, which can negatively affect the comfort of the pedestrian environment). Today, however, successful urban development is impossible without an interdisciplinary approach involving experts from various related fields of study – economics, public administration, architecture, transportation, ICT, and more.

That is why the problem is the large number of stakeholders, which makes it difficult to involve them in the process of planning a city brand, as they often have conflicting and parallel activities. The process of city branding requires the participation of a large number of stakeholders, ranging from public sector organizations to businesses and non-profit organizations with different goals. Authorities, private agencies, and commercial firms run their own campaigns, and most of them do not coordinate with others in developing the brand.

When developing city brands, there is not enough internal support from public and private sector organizations and citizens. The problem is to ensure sufficient political support from public authorities and city halls, as the private sector is more familiar with branding as a concept. However, it is a challenge to mobilize private sector organizations to participate in the city branding process, as well as to find ways to make the organization responsible for city branding relevant to private sector actors. Owners of tourism, restaurant, hotel, and other businesses are willing to cooperate to shape the city's branding, and the opinion and participation of citizens in the city branding process is considered important. However, the actual involvement of citizens in the brand management process is a serious challenge.

The second challenge for city branding is slowness and time-related problems (*City Branding Challenges*). The large number of stakeholders increases the time required for internal communication and decision-making, which slows down the stages of the brand management process. Funding decisions made in the public sector are often delayed. Private sector actors tend to act faster than public sector stakeholders.

The third challenge is the limited understanding of city branding among stakeholders, as marketing in general and branding in particular are alien to many public sector organizations and individuals, who perceive it as too commercial. Similarly, representatives of the public sector have a narrow understanding of branding (perceiving it as logo design) or do not understand the purpose and process of branding at all.

This problem directly affects the fourth one, when the city brand is perceived and developed only through identity, which is often confused with branding - marketing strategy techniques aimed at creating a certain brand style. Identity is not the brand itself, but its important visual part, which includes the logo, branded elements, and the overall image in a comprehensive perception.

The style, image, charm, and historical context present in each city are used to develop the city's identity, and they act as its visual shell. This concept is widely implemented by famous cities in the world when developing their brands – Stockholm, Helsinki, Paris, Amsterdam. But identity does not replace the brand; this approach simplifies and levels the importance of the city's brand concept and methods of its promotion.

The fifth challenge is to ensure sufficient funding for city branding, which is to convince public sector decision makers that branding is a long-term investment with a positive return. Limited funding leads to significant difficulties, including the abandonment of necessary activities, limited or no market research. An alternative would be to attract funding from private sector stakeholders.

The sixth challenge of city branding is related to organizational issues and consists of two main characteristics: conflicting opinions of key stakeholders combined with a lack of clear leadership. These problems are exacerbated by an unclear decision-making structure, limited coordination among stakeholders, stakeholders' fear of losing

power when involved in the co-branding process, and the challenge of building an effective internal communication system. At the same time, the lack of communication is the main difficulty in finding people or organizations that would be responsible for this process.

The next challenge of city branding is related to brand management at the operational level. This challenge consists of two main components. The first is a set of issues related to the difficulties caused by the day-to-day management of an external marketing communication campaign, which include difficulties in combining city branding activities with those of individual stakeholders, difficulties in finding ways to help stakeholders use the brand, lack of marketing skills, parallel activities, and inconsistent messaging. The second component is the difficulty of transferring the brand identity to the experience of using the product, which does not allow to reduce the gap between marketing and reality (*City Branding Challenges*).

Probably the most significant challenge is the formulation of a strategy for the city brand, which breaks down into several smaller interrelated challenges: difficulty identifying target groups, defining brand identity, differentiating from competitors, focusing on the wrong competitors, difficulty adapting the marketing message to different markets and consumer segments, difficulty defining the relationship between the city brand and the regional/national brand, and a general lack of strategic thinking and dialogue.

Overall, poor situational awareness was identified as a significant challenge for city branding. Interrelated characteristics of this challenge are the lack of proper brand success indicators, the use of incorrect indicators, and the use of imperfect monitoring tools. Combined, these features lead to a poor understanding of the situation and the market, inefficient use of resources, and an inability to justify actions and budgetary needs to decision makers.

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# DEVELOPMENT DIRECTIONS OF HEALTHCARE ORGANIZATIONS MARKETING COMPETITIVE STRATEGY

https://doi.org/10.5281/zenodo.10436326

**Abstract**
*The process of developing a marketing competitive strategy of the healthcare organization (HCO) is proposed to be considered as a sequence of five stages: the creation of an information base; strategy choice; strategy verification; drawing up a plan; strategy implementation. The components of the strategic marketing plan of the HCO in the formation of its marketing competitive strategy are determined: basic values; mission; overall goal; vision; formalized goals; strategy structuring; strategic tasks and their description; performance indicators; specific actions. A SWOT and PEST analysis was conducted for organizations operating in the market of healthcare services in Vinnytsya, based on the results, marketing competitive strategies were proposed: focused on process improvement – for municipal, state and private outpatient clinics; focused on quality*

*improvement – for small private specialized hospitals that provide unique services; focused on consumer needs – for large private specialized medical centres, as well as for organizations of all ownership forms, competing in the sector of guaranteed service packages; all three types of strategies are for strategic business units of private multidisciplinary organizations.*

**Keywords:** *marketing strategy of a healthcare organization (HCO), competitive strategies, algorithm for the development and implementation of marketing competitive strategy*.

## Introduction

The development of the healthcare (HC) services market in Ukraine is under the influence of global trends. They are improvement of quality control tools, standardization, unification of treatment protocols, dissemination of the latest diagnostic, treatment, and information technologies, creation of patient databases and information protection, etc. In this connection, the issue of theoretical consideration of the philosophy of market processes and the evolution of a strategic vision is relevant. Top managers of HCOs should rethink the original scientific and theoretical provisions regarding the formation of marketing competitive strategies and introduce new methodological approaches into the practice of managing institutions.

A significant contribution to the research of problems, which related to the theoretical platform of the marketing competitive strategies formation for enterprises, including the field of HC, carried out by foreign scientists, in particular: Ansoff H.I., Kotler Ph., Lovelock C.H., Mintzberg H., Porter M.E., Shalowitz J., Stevens R.J., Thomson R.B., Treacy M., Wiersema F., Wirtz J. and others. However, a certain number of theoretical and practical aspects of this multifaceted scientific problem remain insufficiently disclosed and substantiated. In particular, directions for developing marketing competitive strategies of HCOs require comprehensive research. Thus, the relevance, scientific and applied significance of the identified problem determined the choice of this research topic, its goal and tasks.

**Materials and Methods**

In the course of the research general theoretical methods of scientific research were used, analysis, synthesis, induction, deduction, expert method, system approach.

**Results and Discussion**

We have identified several areas of development of the marketing competitive strategy of HCOs:

1. Algorithmization of the strategy development process;
2. Differentiation of the strategic marketing plan for HCOs of different ownership forms;
3. Formation of the optimal marketing competitive strategy of HCOs;
4. Selection of marketing mix instrumental strategies in accordance with the chosen marketing competitive strategy.

The process of developing and implementing a marketing competitive strategy is presented by us in the form of an algorithm, which, due to the properties of determinism, scale, adequacy, and comprehensibility inherent in the algorithmization process, acts for the manager as a factor in reducing the gap between the theory and practice of strategy development (Figure 2.2). In this algorithm for marketing competitive strategy development, the HCO mission is determined within the general goals at the stage of information base creation. The mission is specified at the stage of drawing up the plan, acquiring a clear and concise formulation. In our opinion, the mission occupies the first position of the strategic plan due to its generality and ambiguity, and in the following points of the plan, the mission is disclosed, detailed, and implemented.

Goals are specific indicators with certain values, which should be achieved by the HCO in a certain period, with certain criteria for evaluating the activity. Sometimes, in practice, there may be a need to quickly adjust goals and strategy. We note that it is impossible to take into account all the factors which influence the choice of HCO's competitive strategy during its development. However, it is necessary to ensure that goals meet the five SMART criteria when they are formalizing.

After agreement with management and approval, the plan is implemented within the specified time. The main difficulty at the implementation stage is the need to competently implement the

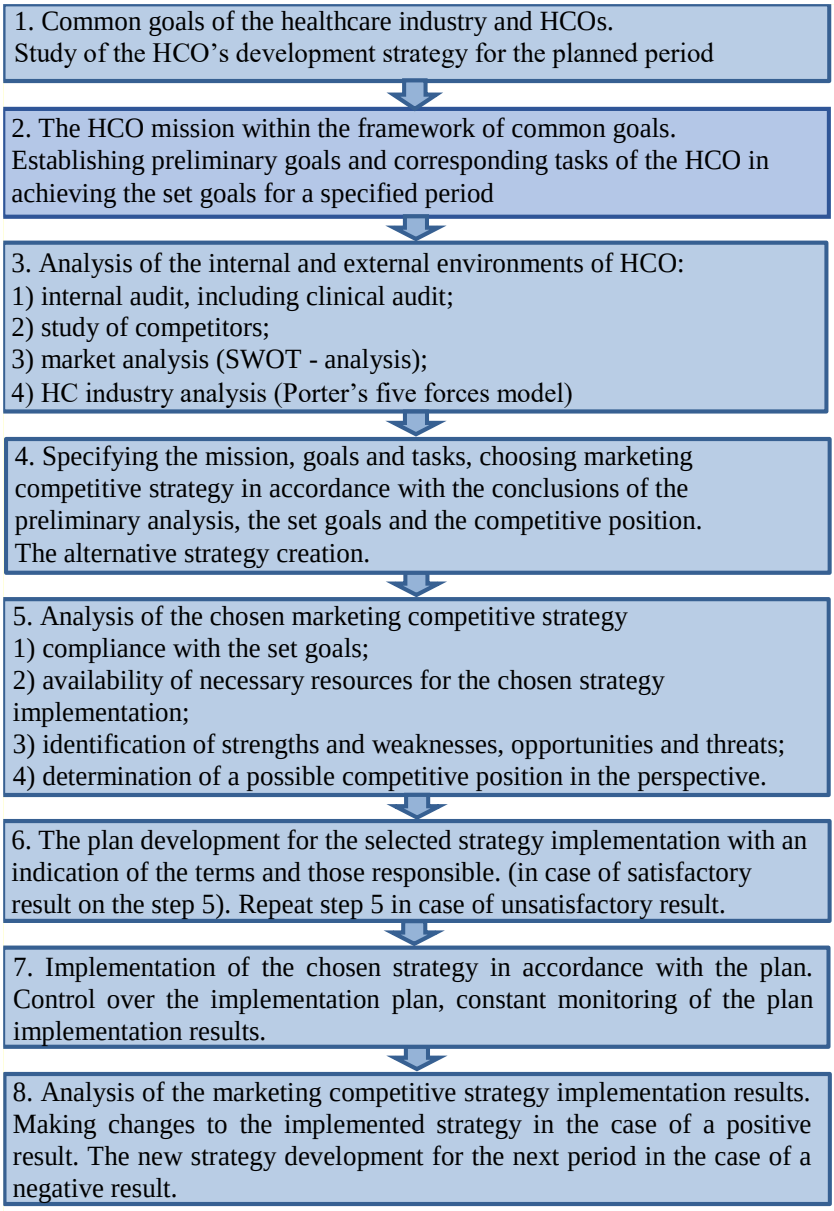


**Figure 2.2 Algorithm for HCO marketing strategy implementation**

*Source: compiled by the authors*

developed plan, following all instructions and deadlines, and reliably assess the implemented strategy effectiveness. The constant monitoring of results at this stage should not suppress the motivation of the executors to work effectively. At the stage of implementation, the ability of managers is quite important to choose the optimal scheme of motivation for managerial influence on the behaviour of medical staff in order to achieve strategic goals.

Control over the implementation plan execution, constant monitoring of its results timely reveal errors and omissions of strategic planning.

Monitoring and control allows managers to timely identify and correct unaccounted resources, overestimated and underestimated opportunities, problems of an organizational and technical nature, errors in forecasts, etc. The results of the monitoring serve as an information base for analyzing the results of the marketing competitive strategy implementation. As a result of monitoring for the next reporting period, managers make appropriate adjustments to the strategy implementation plan with an overall positive result. In the case of a negative result, they consider an existing alternative strategy or develop a new strategy. This algorithm makes it possible to present the development of a marketing competitive strategy as a process of eight steps, which can be combined into five stages (Figure 2.3).

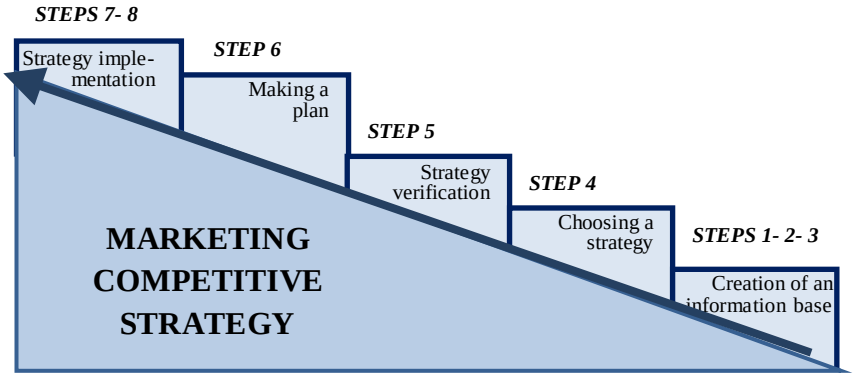


**Figure 2.3 Step-by-step process of marketing competitive strategy development for HCOs**

*Source: compiled by the authors*

The first stage of the process of marketing competitive strategy development (creation of an information database – steps 1, 2 and 3) can be implemented by auditors which appointed by the head of the HCO for internal audit, or by independent auditors, as well as by marketers and managers which conduct thematic surveys of patients. At the second stage, the results of the performed analytical work are considered by the top management for the final determination of priority goals, objectives, competitive strategy, and alternatives to the chosen strategy for the HCO as a whole.

The HCO management distributes the assigned tasks locally to functional units in accordance with resources, potential, and opportunities to solve them.

From the point of view of the resource approach, it is worth considering that the resources to achieve competitive advantages may be scarce. In this case, at the stage of choosing a strategy, the ability of top managers to optimize the allocation of resources is important. After the redistribution of resources, the tasks and the chosen strategy are analyzed. Managers verify them with the available opportunities to implement the strategy.

The next step is to choose the appropriate way to implement the task and marketing competitive strategy by divisions. Strategy selection and verification presuppose prior structuring of strategies by levels and purpose of strategic actions. The results of the analysis and verification with specific proposals, conclusions and recommendations are brought to the HCO management for the marketing competitive strategy development.

If the selected strategy has not passed verification, you can refer to an alternative version of the strategy. We suggest that at the verification stage, we also conduct a comprehensive analytical study that examines discrepancies and gaps between the current state of HCO and the desired one, using a SWOT analysis. To conduct a deep and reliable analytical study, it is important to have qualified managers and marketers in the staff of HCO.

The application of SWOT analysis is necessary for the systematization of available information and subsequent management decisions. Therefore, the SWOT analysis can be called an intermediate link between the formulation of HCO competitive strategy and the competitive plan development. The results of a

carefully conducted SWOT analysis become the foundation of the fourth stage of the process for marketing competitive strategy development.

The well-known strategic plan structure for the HCO marketing competitive strategy formation is interpreted by us as follows:

1. Core values. They are guidelines that allow coordinating the interests of the participants in the medical process such as the HCO, its medical staff and patients;
2. HCO mission. It is a general goal;
3. Vision. It is key idea of the desired marketing development of HCO;
4. Formalized goals. They are transparent and specific market indicators;
5. Structuring of strategy. It is differentiation of strategic actions by levels;
6. Strategic tasks and their description. They show managers ways to achieve the set market goals and provide ways to solve each problem;
7. Activity indicators;
8. Specific actions.

We offer to differentiate these eight elements of a strategic marketing plan for HCOs of different forms of ownership in the city of Vinnytsya (Table 2.3).

As can be seen from Table 2.3, most of the elements of the strategic plan differ in private HCOs and municipal non-profit HCOs. This is explained by different access to resources, sources of financing, as well as the ability to dispose of income (profit). It is also worth noting that one of the problems in the field of strategic planning of municipal non-profit HCOs is the lack of qualified specialists, and the lack of skills in conducting strategic analysis.

Therefore, strategic management requires a combination of deep knowledge of the subject matter and mastery of analytical methods.

Most often, the problem may lie not so much in the strategy development, but in the fact that the chosen strategy cannot be adequately perceived and implemented by the management and medical staff of the HCO. In our opinion, the correct formalization of the competitive strategy will help to coordinate the efforts of management and employees in achieving the set goals of the HCO.

*Table 2.3*

**Components of a strategic marketing plan for Vinnytsya HCOs of various ownership forms**

| Constituent elements of strategy | Municipal non-profit and state HCOs | Private HCOs |
|---|---|---|
| The main values of HCO | Teamwork, professionalism, love for the profession and the patient, responsibility, mutual respect, ethics and medical deontology | |
| | Mentoring, satisfaction of the patient's need for medical care, regardless of his financial situation | Service to the patient (client-partner in the treatment process), high quality standards of medical care, innovation |
| Mission | Preservation and restoration of health of every patient who applied for HC service | Providing patients with timely comprehensive high-tech medical care, based on the principle of partnership with the patient and his family members, accompanying the patient, creating a space for permanent positive changes in the institution to meet the needs of staff, clients, the territorial community, public and state institutions. |
| Vision | The HCO is accessible to customers | The HCO has the status of a specialized medical centre, which provides comprehensive services; it has a guaranteed package of high-quality HC services in order to meet the needs of clients. |
| Objectives | Health care of a certain level (by specialization) to the population using diagnostic and treatment technologies in outpatient/hospital conditions | Meeting the needs of patients in HC services and non-medical component services, achieving and maintaining advantages over competitors, gaining market share, ensuring profit growth |

| | | |
|---|---|---|
| Tasks | Providing guaranteed packages of HC services and paid HC services, ensuring the high quality of HC services, improving the qualifications of medical personnel, ensuring the fulfilment of other tasks which defined in the strategy for the development of the territorial community as the founder of the HCO | Optimizing the volume and structure of the consumption of HC services, balancing the demand and needs of consumers, establishing an active systematic relationship between the doctor and the patient, maximizing social activity, ensuring the profitability of HCO |
| Performance indicators | By strategic directions: financial, marketing, motivation and development of personnel, operational processes (medical statistics), resource provision, innovations | |
| Specific actions | Identification of main competitors, collection of information about the competitive environment, assessment of the competition intensity, study of patient satisfaction, determination of competitive advantages in the field of marketing, marketing mix formation | |
| | Competitors ranking, determining the competitive position of this HCO, carrying out SWOT and PEST analysis | Market segmentation, retention of medical staff, formation of competitor marketing portrait, analysis of strategic groups of competitors map, assessment of the market monopolization degree, the five forces of competition analysis |

*Source: compiled by the authors*

We think, the main elements of successful strategy implementation are:

– formation of a strategy implementation plan in the form of clear and achievable targets;

– bringing the formalized strategy to the HCO staff in an understandable form, in order to involve them in the process;

– timely provision of all necessary resources;

– conscientious tasks performance and assigned functions performance of at each management level.

Specific actions require the use of analysis methods. It leads to algorithmization, systematization, and completeness of the plan and allows to quickly and effectively solving the tasks.

SWOT analysis and PEST analysis are available methods of analysis and assessment of the HCO market environment. External factors of HC services market development reflect opportunities and threats; internal factors highlight strengths and weaknesses. A SWOT analysis allows you to identify the relationship between the factors which affect the development of a specific regional market of HC services. It also allows you to form an effective marketing competitive strategy of any HCO.

In general, we can note that HCOs on the regional market need the implementation of a development strategy and marketing competitive strategies. At the same time, we consider it expedient to offer separate strategies for municipal non-profit HCOs and private HCOs, since their mission, vision, goals, and resource provision are significantly different. So the set of marketing instrumental strategies will also be different. Thus, marketing competitive strategies focused on medical process improvement are appropriate for municipal non-profit HCOs and state HCOs at the initial stage of market activity. In the future, under the conditions of providing competitive paid HC services, it is possible to focus on quality improvement and focusing on patient needs (Table 2.4).

We can recommend the following strategies for private HCOs, depending on specialization and size: process improvement – for outpatient polyclinic HCOs, quality improvement–for small specialized hospitals providing unique services, focusing on patient needs – for large specialized HCOs which compete with similar state research institutions and centres.

Multidisciplinary HCOs that have a polyclinic, a hospital, and other medical and diagnostic units can develop different competitive strategies for these strategic business units. For HCOs which compete in the sector of guaranteed service packages, it is important to develop strategies focusing on patient needs and relevant marketing instrumental strategies. The provision of additional non-medical services and the creation of other amenities can be a decisive factor for the patient when choosing an HCO and doctor and for HC providers can be a competitive advantage.

*Table 2.4*

**The choice of an instrumental marketing-mix strategy in accordance with the chosen marketing competitive strategy of HCO**

| **Marketing competitive strategies** | | |
|---|---|---|
| Process improvement | Quality improvement | Focusing on patient needs |
| 1. The main purpose of HCO activity in the HC services market: | | |
| Cost minimization | Maximizing quality | Maximizing patient satisfaction |
| 2. Tasks of HCO according to the purpose: | | |
| 1. Search and purchase of cheap resources.<br>2. Process optimization.<br>3. Services standardization.<br>4. Optimizing the use of production capacity.<br>5. Productivity improvement.<br>6. Maximization of bandwidth.<br>7. Placement in the most cost-effective premises.<br>8. Increasing the volume of HC services. | 1. Increasing market share due to quality.<br>2. Analysis of innovations in treatment technologies and methods.<br>3. Selection of highly qualified personnel.<br>4. Purchase of modern equipment and medical supplies.<br>5. Arrangement of premises at a modern level.<br>6. Creation of a unique service.<br>7. Optimization of the services range. | 1. Services differentiation depending on consumers' needs.<br>2. Researching consumer needs and maximizing their satisfaction.<br>3. Creation of additional services.<br>4. Establishing long-term relationships with patients.<br>5. Ensuring continuous availability of services 24/7.<br>6. Formation of package payments.<br>7. Getting closer to the patient due to distribution optimization.<br>8. Development of value programs and loyalty programs. |
| 3. Marketing instrumental strategies suitable for the implementation of goals and objectives: | | |
| 1. Pricing strategy (for cost-oriented paid services).<br>2. Process strategy.<br>3. Product strategy (for paid services, | 1. Price strategy (price differentiation).<br>2. Product strategy (with emphasis on the medical component, reputation of the HCO and its doctors). | 1. Product strategy.<br>2. Pricing strategy.<br>3. Distribution strategy.<br>4. Promotion strategy.<br>5. Strategy of physical evidence.<br>6. Personnel strategy. |

| | | |
|---|---|---|
| limited application). | 3. Personnel strategy (with an emphasis on retention of medical staff).<br>4. Strategy of physical evidence (with an emphasis on modern medical equipment and infrastructure). | 7. Process strategy.<br>8. Partnership strategy. |
| 4. Result for HCO: | | |
| 1. Achievement of economic efficiency.<br>2. Ensuring medical efficiency.<br>3. Improvement of social efficiency. | | |

*Source: compiled by the authors*

## Conclusions

The process of developing a marketing competitive strategy of HCO is proposed to be considered as a sequence of five stages: the creation of an information base; strategy choice; strategy verification; drawing up a plan; strategy implementation. The components of HCO strategic marketing plan in the formation of its marketing competitive strategy are determined: basic values; mission; overall goal; vision; formalized goals; strategy structuring; strategic tasks and their description; performance indicators; specific actions. A SWOT and PEST analysis was conducted for organizations operating in the market of HC services in Vinnytsya, We propose following marketing competitive strategies: process improvement – for municipal, state and private outpatient clinics; quality improvement – for small private specialized hospitals that provide unique services; focusing on consumer needs – for large private specialized medical centres, as well as for organizations of all ownership forms, competing in the sector of guaranteed service packages. We can recommend all three types of strategies for strategic business units of private multidisciplinary organizations.

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**Chapter 3**

# FUNCTIONING AND DEVELOPMENT OF ENTREPRENEURSHIP IN THE FACE OF CURRENT CHALLENGES AND THREATS

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## ARTIFICIAL INTELLIGENCE, FRIEND OR FOE OF (ENTREPRENEURIAL) CREATIVITY?

https://doi.org/10.5281/zenodo.10436336

**Abstract**
*To pursue such a line of inquiry, one must admit the challenge of a topic that is currently making headlines and which tests the writer with an almost unavoidable biased approach. How can this be avoided when humans have been the only content-generating actors for millennia? Artificial intelligence (AI) content-generating machines are nothing but another colossal extension of the human mind and its infinite creativity, and it now seems as if the apprentice is challenging its master. Algorithmized, trapped in matrixes and neural networks with artificially fed dendrites, axons, and synapses, a powerful AI tends to become, and perhaps in the eyes of more than just a few of us, it has already been acknowledged as a would-be creator, the artisan of an unforeseeable future. This article surveys the way in which AI embeds itself into the fabric of creativity, analysing how it can transform human endeavour, considering both the potential of this state-of-the-art technology and its (current) limitations. The proposed sectoral approach focuses on the concept of creativity while following its fluidity along a series of outstanding AI-related accomplishments in search of a response to the question-title of the paper. Thus far, the analysis shows that human intelligence fosters the embryo of any creative process, with AI not only*

*as one of its most remarkable breakthroughs but also as an (in)valuable partner. The article concludes by arguing that creativity remains an exceptional attribute of man's most beautiful mind; fostering complementarity between machines and humans seems to become a sensitive issue of the future.*

**Keywords:** *creativity, AI, entrepreneurship, threats, limits*.

*For last year's words belong to last year's language*
*And next year's words await another voice,*
*And to make an end is to make a beginning.*
T.S. Eliot

## Introduction

Looking at the world through the telescope of technology, we might come to believe that, in the not so distant a future, cars will become completely autonomous, operating without any human assistance, the most unfathomable depths of the Earth and darkest nooks and corners of outer space will be explored exclusively with the help of AI, investigating methods of medical diagnosis and surgery ("robotic" surgery) will have the accuracy and efficiency any patient can dream of, and the series of examples could continue almost endlessly with AI being at the very heart of things. Perhaps the future belongs to AI in many technical fields of activity, but is it possible for humans to succeed in building genuinely creative machines?

Both celebrated film director Steven Spielberg and famed linguistics professor, cognitive scientist, and philosopher Noam Chomsky have expressed their most serious concerns about artificial intelligence and the role it began to play in the world. In an interview quoted by 'Business Insider' Spielberg argued that just as much as he loves anything created by the human mind, he looks at computer-generated works with the anxiety generated by something that is soulless. "I think the soul is unimaginable and is ineffable. […] And it cannot be created by any algorithm, it is just something that exists in all of us." At the same time, Noam Chomsky believes that AI machines have "sacrificed creativity for a kind of amorality", stressing upon the fact that AI systems are still incapable of independent thought. Beyond all that lies the fact that content-

generating machines, though fed with an infinite quantity of data, struggle to contextualise various of their outputs, one of the reasons for which many are inclined to consider these outputs as mere extensions of AI programmes and not created content per se. A silent, though nevertheless clear-cut distinction springs from the semantic profile of the two verbs in question, namely *to create* and *to generate*. While the former is defined by the Cambridge Advanced Learner's Dictionary as the ability "to make something new, or invent something", the latter narrows its perspective to a somewhat technical approach, which translates as "to cause something to exist". Between "to invent" and "to cause to exist" stretches an entire geography of (human) creativity, which has been assisted, over the past few decades, by artificial intelligence systems and tools, both offsprings of the human mind.

**Materials and Methods**

The phrasing of the title builds itself on a binomial distribution sequence, which was selected as the research methodology framework, a choice that highlights a similar probability of success for either of the anticipated estimations. Placing the question within the larger context of today's unprecedented technological boom, it is only logical to assume that some things can only be predicted and not so much cemented as factual truths, a fact that can only account for the proposed binominal pair *friend*/*foe*. A descriptive approach was used to explore a topic that is currently writing (its) (hi)story at the very moment these lines are being written, with a constant view in mind of sketching a wider narrative through the study of reference literature surrounding the enthralling AI phenomenon.

The research design focuses on the qualitative aspects surfaced by the amplitude of the subject that would be mostly explored through a theoretical lens calibrated to seize the fluidity of one of the most evolving and dynamic phenomena in the history of mankind. Consistent with the research philosophy of the proposed investigation approach is the interpretative vector that anticipates different views on the studied issue. A general holistic account captures a complex picture of the research while describing the perspectives and factors associated with the issue as a whole. The main qualitative research strategy used in the current study is the

narrative outlook that allows the texture of the study to support the itinerary of a journey that intends to probe the question of creativity in its dual relationship to both the human mind and artificial intelligence created by the human mind.

Our attempt to outline the dimension of the intricate process of creativity embedded within the algorithmic network of intelligence machines refers to Alan Turing's proposal of Lady Lovelace's Objection as the modern test for computer intelligence that bears the name of a 19th-century mathematician, considered to be the very first computer programmer, who was also the daughter of the famous poet Lord Byron. Further reference is made to the analytical quartet if questions with which Professor Margaret Boden approaches the Lovelace Test with a view of establishing a scientific relationship between creativity and AI-operated machines.

**Results and Discussion**

Defined by lexicons as "the ability to produce or use original and unusual ideas" (Cambridge Advanced Learner's Dictionary & Thesaurus), human creativity is a complex nebulous concept that is difficult to understand and explain, "something of a mystery, not to say a paradox" (Boden, 2004). No matter where we look around us, we see reflections of human ingenuity and riveting creativity starting with the machine that transcribes any author's thoughts onto a virtual page, the electric energy that powers the computational mechanism, the World Wide Web that allows everyone access to an amazingly immense quantity of data, the coffee machine that rescues many late hours or seduces the early hours of the morning with a reinvigorating aroma, to give just a few examples.

Creativity has been an almost organic part of human evolution, constantly defining its route, offering people insight into new ideas and perspectives. It is a vital component of any entrepreneurial project (Edwards-Schachter et al., 2015). It has been acknowledged that successful entrepreneurs have to think outside the box, as they have to live into the future to be able to carefully plan and assess the present. Innate and/or nurtured creativity is an important part of the entrepreneurial process because it helps entrepreneurs to imagine viable solutions to their problems and, at the same time, constantly pushes the horizons of knowledge towards infinite frontiers.

Creativity recommends itself as a meandering process with a clearly marked point of departure but a totally unforeseen destination. Entrepreneurship relies on creativity (Tiwari and Verma, 2020) to expand its driving force behind any innovation process or technological breakthrough. Creativity may be regarded as the creation and commercialization of new ideas (Basadur, 2004). Nevertheless, regardless of its contextual dimension, whether entrepreneurial or artistic, creativity remains the prerogative of the human mind (Ko and Butler, 2007), a divine spark that has accounted for all the amazing achievements of past and present civilizations.

Thus, we posit the following hypothesis: is creativity unique to the human brain or is it inherent in all information processing devices that reach a certain level of complexity?

Science has always been the one that pushed the frontiers of knowledge; the inquisitive mind rolled the wondrous invention of the wheel through the ages, until it became flight, and the realms of the Earth have been replaced by the infinity of galaxies. None of these would have been possible without man's daring curiosity and desire to discover. The last decades have brought us the new reality of AI, the technology of tomorrow, already the matrix for an ever-increasing number of domains. The use of AI in emerging technologies continues to advance rapidly, with radical transformations occurring every few months. If today's computers lack the emotion and sense of self-awareness normally attributed to humans, or if their computational methods are irreducibly different from ours, is it still possible that these machines can become creative?

It is already a common fact that AI can achieve superhuman performance (Silver et al., 2017). For instance, in 2016 AIVA, a virtual artist released the first music album, followed a year later by the first collection of poems authored by an AI programme, Microsoft's Xiao Bing (apud. Shang, 2022) entitled *Sunshine Missed Windows*. AI programmes surprised the world with their painting productions as well; in 2018 Christie's sold a painting named 'Edmond de Belamy' for USD 432,500 and signed with a part of the algorithm code that produced it. AI completed Beethoven's composition for his last Symphony – the project Beethoven X. At his

death in March 1827, the German composer left 40 sketches for the unfinished 10th Symphony as part of his legacy. A team of machine learning and musicology experts used these sketches to create an artificial intelligence program designed to finish what the artist was no longer allowed to do. The 10th Symphony premiered with the Beethoven Orchestra Bonn in front of a live audience in 2021 under the co-authored human-AI programme.

All these could turn into just as many arguments that will support the theory that AI can generate new ideas, thus associating it with the institution of creativity and challenging to erase whatever makes the difference between an intelligent machine fed with sophisticated computing programmes and a huge data base and human creativity. Or, otherwise phrased in the logarithms of technological semantics, will people be able to create a machine whose intelligence will completely detach itself from the amount of information that fed it at the beginning to start developing autonomous creativity?

Nobel laureate in medicine Sir Peter Medawar, respected by scientists and literati alike, insisted argued that the idea that "creativity is beyond analysis" is a romantic illusion we must now outgrow." (Gardner, 1993) He also argues that the analysis of human creativity will require parallel studies from a variety of perspectives.

Margaret Boden, in her book on computers and creativity, entitled *The Creative Mind: Myths and Mechanisms*, sets out on a journey of discovery that could help her understand "how creativity can happen, but also what creativity is." She mentions Lady Ada Lovelace as the first person who believed that "computers cannot create, because they can do only what they are programmed to do".

In her memoir on Charles Babbage's Analytical Engine, Countess Lovelace was adamant in that: "[it] has no pretensions whatever to originate anything. It can do [only] whatever we know how to order it to perform" (apud. Boden, 2004, p. 16). Let us not forget that the words were uttered in 1843! One hundred years later Alan Turing would refer to these thoughts of hers as the Lady Lovelace's Objection, as opposed to his absolute faith that one day "machines can think" (Turing, 1950). We may even play with a syllogistic reasoning based on de Souza reasoning to connect the brain, a neural structure made up of networks of interconnected neurons, to computational programmes in an attempt to look at creativity as the

bridge that connects the exceptionality of the phenomenon (Bringsjord, Zenzen, 2003, p. 306).

*1. Human brains are creative.*
*2. Human brains are neural nets.*
*3. Neural nets can be creative.*
*4. Neural nets are naturally equivalent to Turing machines.*
*5. Digital computers are 'constrained' by their data and programmes.*
*6. Humans too are constrained by their biology and genetic inheritance.*
*7. Both neural nets face limitations and can hatch creativity.*

In the co-authored book *Superminds: People Harness Hypercomputation, and More*, Bringsjord and Zenzen deconstruct the argument, which, at a first and shallow analysis might persuade the reader of its logic; they argue that premise number four, "which is supposed to be a mathematical fact, is a fact only if 'neural nets' therein is taken to refer to non-analogue artificial neural networks (ANNs)" (Bringsjord, Zenzen, 2003, p. 306). For this very reason, it would be correct to use the phrase *non-analogue ANNs* instead of *neural nets*, which would change the proposed syllogism into the following 7-line construct.

*1. Human brains are creative.*
*2. Human brains are non-analogue ANNs.*
*3. Non-analogue ANNs can be creative.*
*4. Non-analogue ANNs are naturally equivalent to Turing machines.*
*5. Digital computers are 'constrained' by their data and programmes.*
*6. Humans too are constrained by their biology and genetic inheritance.*
*7. Both non-analogue ANNs face limitations and can hatch creativity.*

This leads us to the following question. Is creativity an exclusive talent of the human brain or is it inherent in all information processing devices that reach a certain level of complexity? Some AI scientists argue that once computers become sufficiently powerful,

they will exhibit the same types of creative intelligence normally attributed to humans. That would imply a significantly technological cleavage, since the latest generation of digital computers operate exclusively with precise units, whereas the brain, as far as neuroscience managed to explore it, is a partial analogue system which operates with al almost endless string of possibilities.

Furthermore, according to Tomaso Poggio, Professor of Brain Sciences and Human Behaviour at MIT, "these recent achievements have, ironically, underscored the limitations of computer science and artificial intelligence. We do not yet understand how the brain gives rise to intelligence, nor do we know how to build machines that are as broadly intelligent as we are" (Hardesty, 2013).

Returning to Margaret Boden and her book on creativity and machines, one is challenged with a quartet of questions that assess the connectivity between computers and creativity. Through the series of questions that she articulates, the scholar aims at demonstrating that Lady Lovelace's argument may remain somewhat hasty and too simplistic (Boden, 2004, pp. 16-17).

*Q1 Can computational ideas help us understand how human creativity is possible?*
*Q2 Could computers (now or in the future) ever do things which at least appear to be creative?*
*Q3 Could a computer ever appear to recognize creativity?*
*Q4 Could computers themselves ever really be creative?*

Attempting to go beyond the binary pattern of yes/no answers and accepting the fact that beyond the scientific factuality and technical data lies a whole biased terrain, one explores the Boden quartet with the challenge of a possible (mis)interpretation of what the future has in store for all of us, as a human race. It seems unlikely that computers will help scientists decipher the mystery entangled in the pattern of creativity, if we only consider the fact that neuroscientists are still struggling to comprehend how the human brain gives rise to intelligence, and computers are still incapable of operating within a large, logical contextual matrix. To this first question, Professor Boden did not hesitate to offer an affirmative answer, whereas Selmer Bringsjord, professor of Computer Science and Cognitive Science at Rensselaer Polytechnic Institute, and computer scientist

David Ferrucci were far more skeptical in their responses. The second and third questions benefit from symmetrical answers from both parties, with a slight emphasis on the attitude of the two computer researchers and a cautious prognosis for Margaret Boden. The presence of the verb 'to appear' in the phrasing of both questions widens the scope of probability analysis so much that, considering the latest accomplishments of various AI programmes and machines, one could easily side with either team. The final question of the quartet echoes Lady Ada Lovelace's concern about the existence of a genuinely creative machine, and once again, regardless of the slightly reserved tone of Margaret Boden, all three scholars joined their voices in a negative utterance.

*Table 3.1*

**Boden v Bringsjord/Ferrucci on the quartet of creativity**

| **Margaret Boden** | **S. Bringsjord/D. Ferrucci** |
|---|---|
| answers | |
| Q1 - Yes. | Q1 – No, not really. |
| Q2 – Yes, but a *guarded* yes. | Q2 – Yes, obviously. |
| Q3 - Yes, but a *guarded* yes. | Q3 - Yes, obviously. |
| Q4 – No, probably not. | Q4 – No. |

*Source*: Selmer Bringsjord and David Ferrucci, *Artificial Intelligence and Literary Creativity Inside the Mind of BRUTUS, a Storytelling Machine*, 2000, p. 10.

We are currently experiencing what Countess Lovelace referred to as "poetical science", the one that weaves the magical threads of creativity into the warp of technology, bringing the two worlds together; just as Lady Ada anticipated almost a century and a half ago, the two have managed to develop a fruitful relationship, but nowadays there is no such machine that could 'create' a thought of its own. What people could bring into this relationship, Lady Lovelace said, was originality and creativity. Her words remain true to this very day and neuroscience proves that she was and still is right.

Stuart Russell and Peter Norvig, the authors of one of the most important scholarly handbook on AI argue that despite the fact that computers can perform a task in a nanosecond, "whereas neurons are millions of times slower", in the end the human mind "more than make up for this, however, because all the neurons and synapses are active simultaneously, whereas most current computers have only

one or at most a few. Thus, even though a computer is a million times faster in raw switching speed, the brain ends up being 100,000 times faster at what it does" (Russell, Norvig, 2010, p. 12).

The world as we know it will never be the same again. After the third industrial revolution triggered by the internet and mobile internet, AI technologies associated with big data are preparing for a fourth revolution. We are facing a milestone in the history of human–intelligent– machine relations, recognized as one of the realities that have long ago crossed the boundaries of the technical universe, embedded as they are into the new order of things that surround us and define our entire set of social, professional relationships.

Inventor and futurist Ray Kurzweil, in his book *The Singularity Is Near*, believes that the time will come when scientists who design the programmes for these intelligent machines will finally create machines that outsmart us. These machines, in turn, will be able to design computers that are even smarter than themselves. Kurzweil believes that within decades, information-based technologies could encompass much of the existing human knowledge. This escalation will lead to machine-based ultra-intelligence, a fact that challenges the very nature of human intelligence even more.

If literature has always been at the forefront of things it is precisely because of an immense gift of exploring the world and its time layers with breath-taking imagination and colossal creativity. Artificial intelligence is just one example of the way in which the beautiful human mind operates, creating and innovating, changing the world and promising to conquer galaxies in the future. As long as there will be a balance in between the two analysed actors, the living, splendid human mind and the surprizing, analytical computational matrix, we do not have to fear the prophecy the British novelist Samuel Butler wrote in 1863, in his essay *Darwin among the machines*: "We take it that when the state of things shall have arrived which we have been above attempting to describe, man will have become to the machine what the horse and the dog are to man. He will continue to exist, nay even to improve, and will be probably better off in his state of domestication under the beneficent rule of the machines than he is in his present wild state" (Butler, 1914, p. 183).

## Conclusions

Human creativity is that unexplainable 'something' that creates, dominates, understands, coordinates and never ceases to amaze, embraces in mind and caresses with the soul, an exercise that will always remain foreign to any form of AI, no matter how extensive the algorithms of the programmes that feed it. Aware of its finite architecture, human intelligence remains the only artisan of the millennia of civilization and culture, which, in spite of its fragility, continues to dare and dream of uncharted territories. This unquenchable thirst for answers, new solutions, and discoveries has always been fuelled by imagination and steered by human creativity. As this journey is assisted by AI tools, it is the latest proof of the supremacy of the living and warm emotional intelligence of humans.

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# DIGITIZATION OF THE GLOBAL RETAIL COMPETITIVE ENVIRONMENT LANDSCAPE

https://doi.org/10.5281/zenodo.10436342

**Abstract**
*The work examines the main driving forces and processes that shape the landscape of the global competitive environment in global retail trade, structural changes due to the activation of e-commerce, the introduction of omnichannel by leading retailers and the using of modern information and communication technologies and innovative solutions*.

**Keywords:** *global competition, digitalization, e-commerce, cross-border trade, innovative technologies*.

## Introduction

We fully share the view that the "global trade has experienced a remarkable transformation in the last few decades, evolving from a complex matrix of isolated, national economies to an interconnected, globalized marketplace. Global population growth, liberalization of trade policies, and the emergence of developing countries as powerful players have spurred unprecedented changes, shifting the dynamics of the world's economic landscape. Moreover, in recent years, global trade is witnessing rapid growth through advancements in technology and the dawn of the fourth industrial revolution" (Global Trade Risks…, 2023).

Industry 4.0 opened radical changes in retail trade, transforming existing business models and and ensuring the transition from Retail 3.0 to Retail 4.0, to technologically advanced digitization systems that integrate with smart objects and IoT.

As a result, modern information and communication technologies act as the basis for creating and ensuring the functioning of the digital space of retail trade enterprises interaction with the factors of

the marketing environment.

Currently, the main driving forces that determine the nature and prospects of the further formation and functioning of competitive environment both retail and wholesale trade, and, accordingly, the competitive behavior of business entities are the following:

– globalization processes of the world space and the growing power of their influence;

– integration of the economic space and increased it influence on the character of transnational and international corporations development;

– further penetration of the global Internet network and related processes, in particular, the dynamic development of e-commerce and its using by both online players and traditional brick and mortar stores;

– expanding the possibilities of using electronic channels and diversifying organizational forms (electronic stores, marketplaces, mobile commerce, social commerce etc);

– the transition of competition from the local to the global level, as a result, the competitive struggle becomes quite tough: the exit of many companies to the international level causes a change in the nature of competition, it moves to the level of a struggle for a share in the world market;

– development and further improvement of information and communication technologies for business conducting;

– innovative developments and their using in marketing, logistics, management.

**Materials and Methods**

The work uses the following general scientific and special research methods: comparative and critical analysis, systematization, graphic and structural analysis, logical generalization.

**Results and Discussion**

In the run-up to G20 summit, it was survey more than 500 corporate leaders from around the world. They shared their views "on the barriers that are presently obstructing or likely to impede global trade growth in the near future" (Global Trade Risks…, 2023).

As was show by the results of research "the large majority of the participating business leaders are aiming to grow their businesses via

global trade in the years ahead" (Global Trade Risks…, 2023).

The majority companies (40.8%) are in the process of adopting automation technology for trade functions. Only 23.2% among respondents have established mature technological systems deployed for trade management and 22.0% explore application of emerging tech such as blockchain, AI, Smart IoT systems etc. (Global Trade Risks…, 2023).

The answers to the question about the top 3 drivers for trade growth and business trajectory in the coming 5 years showed the following results (Figure 3.1).

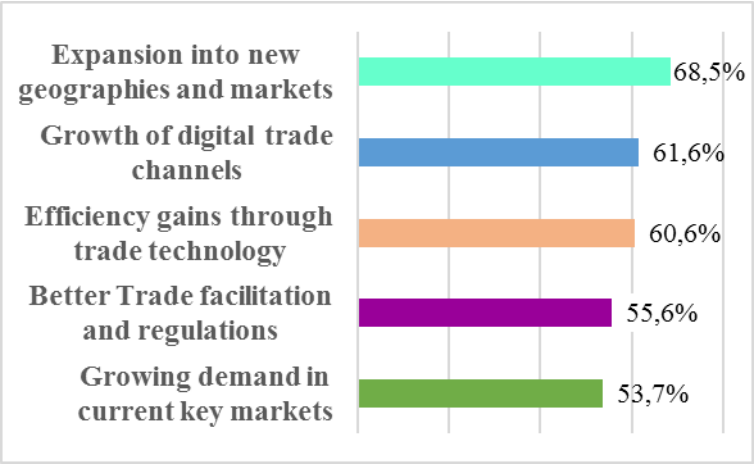


**Figure 3.1 The top 3 drivers for trade growth in the coming 5 years**

*Source: developed by the author based on the data (Global Trade Risks…, 2023)*

Overwhelming majority of respondents named expansion into new geographies and markets (68.5%), growth of digital trade channels (61.6%) and efficiency gains through trade technology (60.6%) as an integral driver of trade growth (Global Trade Risks…, 2023).

Research showed that in 2022 amazon.com, jd.com, apple.com, walmart.com and shein.com were among the five largest online stores in the global e-commerce market (Top eCommerce stores…).

Three largest online stores together account for 34.3% of the market out of the 100 largest stores in the world e-commerce market

(Top eCommerce stores…).

Let's consider Top 10 Global Retailers 2023 at the 50 most impactful international retailers based on their operations at the start of 2022 (Table 3.2). Kantar's ranking methodology uses a system in which points are given to retailers based on their domestic and international retail revenues (Top 50 Global Retailers, 2023).

*Table 3.2*

**Top 10 Global Retailers 2023**

| Rank. | Retailer | Home country | Business foundations | Total company revenue ($ billions) | Total worldwide stores (incl. domestic) |
|---|---|---|---|---|---|
| 1 | Walmart | USA | Mass/Hyper | 585.2 | 10,490 |
| 2 | Amazon.com | USA | Ecommerce | 352.7 | 589 |
| 3 | Costco | USA | Club | 219.2 | 842 |
| 4 | Schwarz Group | Germany | Discount Grocery | 159.8 | 13,756 |
| 5 | The Home Depot | USA | DIY | 157.3 | 2,317 |
| 6 | Aldi | Germany | Discount Grocery | 130.4 | 13,325 |
| 7 | Carrefour | France | Mass/Hyper | 108.4 | 14,474 |
| 8 | Seven & I | Japan | Convenience | 94.6 | 40,325 |
| 9 | Ahold Delhaize | Netherlands | Grocery | 94.5 | 7,793 |
| 10 | IKEA | Netherlands | Furniture | 47.4 | 465 |

*Source: developed by the author based on the data (Top 50 Global Retailers, 2023)*

As the rating showed, the Top 10 Global Retailers includes only one classic representative of the e-commerce sphere – Amazon.com. All others adhere to an omnichannel approach to the organization of the sale of goods, using both traditional brick and mortar stores and the electronic channel.

Deepening the analysis, let's consider the top 10 most international Retailers 2023 (Table 3.3).

*Table 3.3*

**The top 10 most international Retailers 2023**

| Rank | Retailer | International revenues ($ billions) | International revenues share in total company revenue, % | Number of international stores | International stores share in total worldwide stores, % | Countries of first-party operation |
|---|---|---|---|---|---|---|
| 1 | Amazon.com | 120.10 | 34 | 21 | 3,5 | 21 |
| 2 | Schwarz Group | 108.70 | 68,0 | 9,736 | 70,8 | 30 |
| 3 | Walmart | 101.20 | 17,3 | 5,160 | 49,2 | 24 |
| 4 | Aldi | 97.90 | 75,0 | 9,113 | 68,4 | 19 |
| 5 | Ahold Delhaize | 72.30 | 76,5 | 5,556 | 71,3 | 9 |
| 6 | Carrefour | 66.40 | 61,2 | 8,465 | 58,5 | 34 |
| 7 | Costco | 55.10 | 25,1 | 268 | 31,8 | 13 |
| 8 | IKEA | 45.90 | 96,8 | 452 | 97,2 | 51 |
| 9 | Seven & I | 36.20 | 38,3 | 18,286 | 45,3 | 10 |
| 10 | The Home Depot | 9.50 | 6 | 325 | 14 | 6 |

*Source: developed by the author based on the data (Top 50 Global Retailers, 2023)*

In terms of revenue from the internationalization of its activities, Amazon.com occupies a leading position ($120.10 billion). However, this is only 34% of the company's total revenue. Instead, the leading position is occupied by the IKEA company as a multichannel retailer, whose foreign operations provide 96.8% of sales revenue and 97.2% of stores are located abroad in 51 countries of the world. Thus, the omnichannel provides leadership positions to

the largest retailers and gives the opportunity to shape the configuration of the competitive environment of global retail trade.

The development of cross-border trade has a significant impact on the formation of a competitive environment in global retail trade.

According to a survey conducted in October 2022, more than a quarter of online shoppers in 40 countries made their last cross-border purchase through Amazon. Alibaba/AliExpress took second place: 17 percent of e-commerce users placed their last order from abroad there (Online retailers from…, 2022).

In the EU, the online turnover of B2C goods grew by 11.5% to €639 billion in 2021. In 2021, the European cross-border online market generated a turnover of €171.2 billion (excluding travel), an increase of 17% compared to 2020. Cross-border B2C online sales through European (including Great Britain) sellers accounted for 26.8% of the total turnover in 2021. In 2020, this indicator amounted to €87.2 billion, that is, the growth since the beginning of the year was 14.6%. Cross-border online sales exceeded the total volume of online sales in 2021. A key factor was Covid-19, which forced consumers to go online for shopping (CB Commerce Europe…). In our opinion, the revealed convenience of this method of purchasing goods only will contribute to the growth of loyalty among consumers.

Cross-border online B2C sales in 2021 saw the greatest development in five European countries (Table 3.4), which accounted for 58.4% of the total value of the indicator.

*Table 3.4*

**Top 5 European countries in cross-border retailing in 2021**

| | | CB turnover, € billions | Share in total CB turnover, % |
|---|---|---|---|
| 1 | Germany | 32 | 18,7 |
| 2 | United Kingdom | 29 | 16,9 |
| 3 | France | 23 | 13,4 |
| 4 | Spain | 11,3 | 6,6 |
| 5 | Netherlands | 4,8 | 2,8 |
| | TOTAL | 100,1 | 58,4 |

*Source: developed by the author based on the data (CB Commerce Europe…)*

Among the Top 10 European cross-border retailers in 2021, omnichannel companies prevailed (7 out of 10). At the same time, a clear commitment of consumers to a certain product category was not found among the considered companies (Table 3.5).

*Table 3.5*

**Top 10 European cross-border retailers in 2021**

| | Parent Company | Company | Country | Sector | Product category |
|---|---|---|---|---|---|
| 1 | Inter IKEA holding | IKEA | Sweden | Multichannel Retailer | Home, Garden, DIY |
| 2 | H&M Group | H&M | Sweden | Multichannel Retailer | Fashion, Jewellery, Baby |
| 3 | Lego Group | Lego | Denmark | Brand Manu-facturer | Toys&Games |
| 4 | Kinnevik | Zalando | Germany | Pure Player | Fashion, Jewellery, Baby |
| 5 | Schwarz Gruppe | Lidl | Germany | Multichannel Retailer | Mass Merchant |
| 6 | Otto Group | About You | Germany | Pure Player | Fashion, Jewellery, Baby |
| 7 | JYSK Group | JYSK | Denmark | Multichannel Retailer | Home, Garden, DIY |
| 8 | Inditex Group | Zara | Spain | Multichannel Retailer | Fashion, Jewellery, Baby |
| 9 | Bauhaus Archiv GmbH | Bauhaus | Germany | Multichannel Retailer | Home, Garden, DIY |
| 10 | Euronics International Ltd | Euronics | Netherlands | Multi-hannel Retailer | Consumer Electronics |

*Source: developed by the author based on the data (CB Commerce Europe…)*

According to expert forecasts, by 2030 the share of e-commerce in the EU countries will reach 30% of total sales in the sector. Thus, digitalization can create over 1 trillion euros in additional online sales in B2C segments i B2B (Transforming the EU Retail…).

Another trend that is gaining popularity among consumers is mobile commerce and social commerce.

In countries such as the UK, France and Italy, m-commerce accounted for about half of all online commerce in 2021, while in South Korea it was around 72% (The Ultimate Overview…, 2023).

Social commerce or social shopping, which refers to the use of social media platforms as e-commerce ecosystems, is dominating online shopping. Particularly known among younger audiences, this type of commerce has witnessed exponential growth around the world, generating approximately $992 billion in 2022 alone (The Ultimate Overview…, 2023).

Therefore, companies that want to succeed in the highly competitive industry must invest in social media channels such as TikTok, Instagram, which are predominantly popular among Generation Z. It is also necessary to "develop mobile apps with regular push notifications, invest in mobile optimisation for their websites, and even experiment with live shopping" (The Ultimate Overview…, 2023).

In addition, such fundamentally new organizational forms of e-commerce as livestream shopping, voice commerce are emerging.

As part of social commerce, livestream shopping also known as live shopping and live commerce are becoming popular. This internet trend originally from China has entered Europe and can be seen as a digital version of teleshopping. Users are connected to a live stream; meanwhile, brand representatives or influencers present products to the audience who can buy products directly while watching with just a click (The Ultimate Overview…, 2023).

Thanks to the live situation, the audience is able to ask questions about the product and see it being used by the person presenting it and the brand can therefore gain more insights about its target audience, which helps to prepare more effective campaigns in the future (The Ultimate Overview…, 2023).

In addition, there is also a growing trend of voice assistants. The so-called voice commerce or voice shopping implies using voice

commands to buy online via smart devices, like Amazon's Alexa. This trend has been growing since 2014 and the total value of all global e-commerce transactions for 2023 is expected to reach $9.4 billion. This would result in 400% growth in just two years (The Ultimate Overview…, 2023).

Thanks to chatbots retailers can offer quick 24/7 responses to any client or lead and save their Customer Support Agents time to deal with more time-consuming activities. Being able to offer this service outside business hours and guarantee effective and personalised support can help any company have a competitive advantage (The Ultimate Overview…, 2023). The popularity of chatbots will continue to grow over time.

Further digitization of the competitive environment requires organizational agility from trade enterprises – "is a company's ability to consistently identify and capture business opportunities more quickly than its rivals do" (How to Thrive…).

Under such conditions, we fully share the point of view (How to Thrive…) that such organizational agility should be manifested in different ways depending on the circumstances, in particular:

– operational agility is the company's capacity, within a focused business model, to find and seize opportunities to improve operations and processes more quickly than rivals do;

– portfolio agility is the ability to quickly and effectively shift resources, including cash, talent, and managerial attention, out of less-promising units and into more-attractive ones;

– strategic agility is the ability to Identify and seize game-changing opportunities when they arise.

**Conclusions**

Digitization, the introduction of information and communication technologies and innovative solutions lead to changes in the contours of global retail trade. As a result, we are observing the formation of a global competitive environment, the continued dominance of large business representatives in it, the activation of cross-border transactions by them, the introduction of an omnichannel approach to the organization of the sale of goods and trade services to consumers, and the strengthening of the innovative component of competitive policy.

All these factors require from trade business subjects of maximum organizational flexibility in all the named forms of its manifestation.

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# CHALLENGES FOR UKRAINIAN INTERNET BUSINESS ON THE WAY TO THE EU DIGITAL SINGLE MARKET

https://doi.org/10.5281/zenodo.10436350

**Abstract**
*The study outlines the main factors behind the rapid development of e-business in Ukraine. It is shown that the full-scale invasion has led to a sharp decline in purchasing power and a reduction in e-commerce in Ukraine. The research identifies the current problems of further development of e-business in Ukraine, in particular, the crisis of the national economy, disruption of logistics chains and damage to the domestic transport system, problems with digital infrastructure and instability of communication, Internet fraud, the spread of which is facilitated by shortcomings in Ukrainian legislation, shortcomings in the field of consumer protection, conclusion of contracts for the supply of digital content and digital services, and settlements in the field of e-commerce. The paper substantiates the main directions of further development of Internet business in the context of strengthening of European integration processes.*

**Keywords:** *Internet business, e-commerce, digital transformation, the EU Single Digital Market, small and medium enterprises (SMEs), European integration, logistics and transport system, digital infrastructure.*

## Introduction

The global business landscape and modern business technologies have undergone a profound transformation with the rise of the digital economy and the evolution of e-commerce. Companies leverage tools and technologies in information and communication to venture into global markets, broaden and diversify sales channels, conduct extensive market research, make informed management decisions, and better cater to the needs of their target audience. The digital

overhaul of market dynamics and internal business processes brings additional advantages to SMEs, including cost savings in marketing and sales, enhanced business communications and customer service, improved market transparency and pricing, heightened marketing efficiency, and the expansion of customer base and loyalty (Honcharuk et al., 2022).

However, the current state of e-commerce in Ukraine faces a crisis due to the full-scale invasion. The Russian military aggression has inflicted significant damage on the Ukrainian economy overall, with a particularly pronounced impact on Internet-business and e-commerce. This is evident in the destruction of transport and logistics infrastructure, population migration, and the exodus of personnel abroad. Despite these challenges, Ukrainian producers find new opportunities arising from Ukraine's integration into the EU's Digital Single Market in the post-war period, providing access to European markets today (Kyrychenko, 2022).

**Materials and Methods**

The information base of the research included statistical materials of Eurostat, the State Statistics Service of Ukraine, as well as regulatory acts of Ukraine and EU supranational regulatory bodies (European Commission, European Parliament, Council of the EU, etc.), scientific publications of world and Ukrainian scholars on the digital economy, the Digital Single Market, electronic commerce and Internet business. General scientific and special research methods were used in the research. The method of comparative analysis was used to identify key trends in the development of e-business in Ukraine in the context of integration into the EU. The methods of induction and deduction helped to identify problems and challenges for modern Ukrainian e-business and obstacles to the Digital Single Market. The abstract and logical method allowed us to summarise the factors influencing e-business during martial law. The methods of generalisation and abstraction made it possible to systematise the problems and substantiate the directions of development of Ukrainian e-business in the context of EU integration.

**Results and Discussion**

Electronic business (e-business) refers to the conduct of commercial and business activities through electronic means,

primarily leveraging the capabilities of the internet and digital technologies. In an e-business environment, various processes such as buying, selling, marketing, communication, and collaboration are executed electronically. E-business incorporates elements like e-commerce, online banking, electronic data interchange (EDI), and the utilization of cloud computing for storage and processing. This encompasses online transactions, digital communication channels, electronic data interchange, and the integration of technology to streamline and enhance business operations. E-business uses online platforms, electronic data exchange, and digital tools to facilitate efficient and global business interactions. The goal of e-business is to leverage technological advancements to optimize processes, improve customer experiences, and foster innovation in the ever-evolving landscape of commerce.

In the pre-war year of 2021, the e-commerce market in Ukraine achieved a volume of USD 3.5 billion, constituting approximately 2.6% of the country's GDP (Statista, 2022). During that period, the Ukrainian e-commerce market displayed a growth rate of 27%, surpassing the global rate of 15%. The growth of the e-commerce market share in Ukraine can be attributed to various factors, including expanded Internet access and digital device usage, increased availability of mobile devices and mobile Internet competing effectively with traditional broadband technologies, advancements in digital marketing, and a rising interest in online shopping across diverse social media, communities and marketplaces.

The potential for market expansion, increased activity among Internet users, increased purchasing power, and trust in online shopping, along with the accelerated use of the Internet and the launch of new marketplaces and digital e-commerce platforms, collectively contribute to the promising growth of the e-commerce sector.

However, with the Russian invasion in 2022, e-commerce sales experienced a sharp decline of 87%, plummeting to USD 295.85 million. This downturn resulted from the inflation, diminished purchasing power among the population, migration challenges, disrupted logistics for imported goods, and the physical and economic blockade of occupied territories, among other factors.

Several months after the invasion, logistics companies resumed operations in de-occupied territories, and demand for essential goods, including food, gradually rebounded (Kyrychenko, 2022). In 2023, e-commerce operations resumed, albeit in a wartime setting, but a return to pre-war trade volumes is not anticipated.

The e-commerce landscape in Ukraine shows promise, with its growth rate surpassing that of other EU countries in recent years. Despite the ongoing military operations, the outlook for e-commerce remains optimistic, driven by advancements in information and communication technology (ICT) and online commerce.

However, several challenges hinder the further development of e-commerce in Ukraine. Key among them are the contraction of the consumer market and the diminishing purchasing power of Ukrainian consumers. The invasion by Russia has had profound effects on the lives of millions, resulting in a devastated economy. According to the UN, in 2022, the Ukrainian economy contracted by 35%, and inflation soared to 26.6% (World Bank, 2022). The humanitarian toll is substantial, with enduring negative socio-economic consequences.

The onset of the invasion prompted around 11 million Ukrainians to flee the country, with a significant portion likely to remain abroad. The extent of socio-economic losses hinges on the wartime's duration, and if prolonged, a substantial economic decline is anticipated. The wartime and the resulting humanitarian crisis impose constraints on investment, as well as imports and exports. Even post-war, the persisting challenges of poverty and out-migration are expected to exert a lasting adverse impact on the economy and demographics (Kliuchnyk, 2022).

Another significant challenge arises from the disruption of logistics chains and damage to the domestic transport system. Consequently, companies find themselves unable to make deliveries to specific regions, and delivery times have experienced considerable extensions. The international logistics faces many difficulties, as the supply of goods from abroad is limited, and some international companies decide to leave the Ukrainian market without resuming their activities within the country. The unavailability of air travel and the blockade of seaports by occupiers further compound these logistical issues.

Given the existing circumstances, certain Ukrainian online

retailers have taken the initiative to look for new suppliers and reconstruct their logistics from the ground up. This is seen as a new opportunity for Ukrainian producers, bolstered by an increased demand for Ukrainian goods since the invasion. Notably, 41% of Ukrainian consumers prefer domestic brands (Gradus Research, 2022).

Another prospect for Ukrainian online retailers is the exploration of new markets, caused by declining sales and the reduced purchasing power of Ukrainian consumers. The markets of the EU's closest neighbors are promising. For instance, while Ukrainian sellers previously operated in the Polish market, there has been a surge in sales. Ukrainian logistics companies are opening offices abroad, and businesses are introducing delivery services or moving offices and renting warehouses in response to the changing landscape.

In recent years, e-commerce and postal services have emerged as the fastest-growing sectors globally. Geographically proximate and economically robust, the European Union stands out as one of the most promising destinations for Ukrainian e-commerce. However, the ongoing wartime has significantly diminished the competitiveness of Ukrainian businesses, primarily attributed to unfavorable logistics.

Addressing this challenge necessitates prioritizing the development of postal services as a primary means of facilitating e-commerce transactions. An essential step in expediting the provision of postal services involves ongoing efforts to enhance collaboration between postal operators and customs authorities, aiming to reduce the duration of customs clearance for postal items. Achieving complete integration in the postal services sector entails the implementation of key elements of the EU acquis, including but not limited to Regulation (EU) 2018/644 on cross-border parcel delivery services, the Digital Markets Act, and other relevant regulations (Trypolska G. et al., 2023).

Payment services and delivery are the crucial components within the realm of online commerce. Foreign buyers seek secure, familiar and convenient payment options while desiring prompt and convenient delivery of their online orders. Major international platforms generally handle payment acceptance; however, Ukrainian

sellers, in other instances, must be equipped to accept card payments. The recent overhaul of the payment services market, aligning with the EU Payment Services Directive (PSD2), facilitates the relatively straightforward establishment of new branches in Ukraine for international financial groups. These branches can obtain licensing from the National Bank of Ukraine, assisting Ukrainian businesses in accepting payments from foreign customers.

Concerning delivery, Ukrposhta manages two-thirds of shipments from online retailers to foreign destinations. In December 2022, Ukrposhta announced a reduction in the cost of shipping parcels to Poland and introduced a separate Ukrzaliznytsia carriage dedicated to postal shipments abroad, with the aim of expediting parcel delivery. To further enhance delivery services, Ukrposhta should collaborate with government agencies and private companies to innovate new transporting methods. For instance, the revival of air cargo flights from airports near the EU border could not only boost e-commerce exports but also enhance international trade more broadly. This requires coordination with the National Security and Defence Council, the General Staff of the Armed Forces of Ukraine, the Ministry for Communities, Territories and Infrastructure Development, as well as the State Aviation Administration (Trypolska G. et al., 2023). Collaboration with EU postal operators and carriers is also valuable, as their assistance can contribute to finding faster and more affordable ways to deliver shipments from Ukraine. By allocating additional resources to expedited delivery from Ukraine, these efforts empower Ukrainian businesses to compete effectively in the global e-commerce market, where delivery times play a key role.

Challenges remain in Ukraine's digital infrastructure, including issues such as Internet speed, accessibility, and a relatively low Internet traffic. According to the data from the International Telecommunication Union (ITU), Ukraine's Internet penetration rate remains lower compared to the EU countries. This trend is relevant for the fixed and the mobile broadband penetration. Regional discrepancies exist in terms of Internet availability and ease of access. Since September 2020, the National Commission for the State Regulation of Communications and Informatization publicly discloses data on fixed broadband Internet penetration based on

location. Some regions in government-controlled territories within conflict zones face challenges of inadequate internet connectivity.

As of 2022, the number of smartphone users in Ukraine has increased to 76.59% (Statista, 2023). Despite expanded coverage, mobile Internet speed remains low. The average fixed and mobile download speeds in Ukraine are still lower than the global average. To solve this issue, realize the digital transformation and meet the global standards, in November 2020, the government approved a phased plan for the implementation of fifth-generation (5G) technology, targeting a 2022 rollout initially in major cities.

The Ministry of Digital Transformation continues to collect current information on Internet coverage and speeds nationwide through a dedicated website. In September 2020, the government endorsed an action plan for 2020-2022 aimed at enhancing the quality of mobile services, promoting transparency among operators.

Despite the ongoing wartime, Ukraine is making strides in reforming the digital services sector, demonstrating progress in the face of significant disruptions caused by the Russian full-scale invasion. This turmoil has adversely affected telecommunications, digital services, and various aspects of the economy, impacting employment, e-commerce, IT, startups, and accessibility to online public services for the population. Prioritizing the restoration of Ukraine's broken digital infrastructure is crucial for the digital services sector and requires funding and equipment.

In the field of cybersecurity, compliance with European standards is imperative. Implementation of legislation such as the new Cyber Resilience Act, the updated NIS 2 Directive, and initiatives to develop the cyber services market are extremely important (Trypolska G. et al., 2023). Broadband Internet access with a minimum speed of 100 Mbps is a priority in the telecommunications sector. However, achieving this goal requires infrastructure development, a process expected to span several years.

Turning to trust services, Ukraine has taken steps to recognize electronic qualification signatures from the EU. Full integration entails implementing EU Regulation 910/2014 and establishing an independent conformity assessment system for electronic trust services (Trypolska G. et al., 2023).

Internet fraud poses a distinct challenge exacerbated by gaps in

Ukrainian legislation. Unlike some EU countries (Germany, Austria), in Ukraine there is no opportunity to deposit funds during prepayment by customers. This legal loophole allows online sellers in Ukraine to withhold company registration information, publish fictitious data without verification by competent authorities. Imperfect legislation, coupled with the absence of an effective supervisory authority for consumer protection in e-commerce, contributes to the problem. The existing Law "On Protection of Consumers' Rights" still lacks a dedicated section addressing protection against fraud in online commerce.

The Ukrainian e-commerce legislation lacks effective tools and pre-trial mechanisms to protect the rights of online buyers (Trypolska G. et al., 2023). The consumer protection law in e-commerce should contain mechanisms similar to those in force in EU countries. For instance, it's necessary to limit the online sales to entities that haven't provided the company's registration data. Empowering competent authorities to block unidentified online store websites is also crucial. Additionally, proper regulation of the mechanism for depositing funds in a banking institution or on a virtual marketplace account is necessary.

According to European consumer protection models, Ukraine should consider officially publishing verified and reputable online retailers on the regulator's website, similar to the public register of honest sellers in Germany, France and Switzerland maintained by tax authorities (Taptunova et al., 2021).

Various aspects related to protection of consumer rights, contracting for the supply of digital content and services, as well as e-commerce payments in Ukraine are yet to be regulated and harmonized with EU law. The large shadow e-commerce market outside of government oversight allows online shops to sell contraband goods without confirming their safety and quality, creating unfair market conditions with significantly lower prices. The challenge of trade and exchange of illegal goods, services, and content on the Internet persists, as well as use of online services for disinformation and other harmful purposes. There is no unified authority responsible for formulating and implementing a comprehensive state policy on e-commerce. Ukraine needs to develop policies in coordination with the EU, considering strategic

documents, EU acts and declared goals comprehensively.

The issue of the monopoly position of major players in the e-commerce market, including marketplaces, remains unaddressed. With the EU's adoption of the Digital Markets Act in July 2022, defining certain marketplaces as gatekeepers due to their dominant position, there is a call for similar regulation in Ukraine (EPRS, 2020). Notably, users in Ukraine visit two interconnected marketplaces at least 10 times more frequently than others. Due to their high position, they are the easiest ways to find buyers, and if the online seller does not cooperate with them, he is limited in access to the market. This indicates the need for regulatory measures similar to the Digital Markets Act. Furthermore, Ukraine has yet to regulate and harmonize issues related to contracts for the supply of digital content, digital services, and postal services, as outlined in the Association Agreement.

These issues, along with others, should find representation and consideration in Ukrainian laws focused on e-commerce. While having an action plan obliges Ukraine to implement it, achieving full integration requires a proactive approach by preemptively implementing recently adopted EU legislation. The European community can play a vital role in assisting Ukraine towards complete integration not only by revising the legislation framework but also by offering methodological and expert support (Trypolska G. et al., 2023).

To enhance Ukraine's cooperation with EU institutions and align its current legislation with European standards, successful implementation of best business practices within the EU's Digital Single Market (DSM) will require practical measures from the Ukrainian government and e-commerce companies by 2030.

In the areas of digital infrastructure and skills, the expansion of new high-speed communication standards is imperative. It is necessary to create a technological platform of state registers of suppliers, quality and safety of goods. The population needs to enhance both basic and professional digital skills. In the field of Information and Communication Technology (ICT), the introduction of English-language training programs at well-known IT faculties, the attraction of foreign students and the creation of exchange and cooperation programs with foreign universities in the field of IT are

important. At the state level, the creation of laboratories, platforms, and hubs for developing new technologies (such as FinTech, AgriTech, drones, self-driving cars, Internet of Things networks, artificial intelligence, and digital currencies) is crucial.

To accelerate Ukraine's integration into DSM, it is necessary to develop a national road map for harmonizing e-commerce and e-logistics systems with EU systems. Regulatory frameworks for e-commerce, customs clearance, and e-logistics should comply with relevant EU regulations. Pilot systems, including a cross-border e-commerce system and digital logistics corridor between the Baltic and Black Seas, should be implemented (Kulchytskyy et al., 2019).

Continuing the digital transformation of the economy and society by introducing digital services in key areas is essential. The modernization of businesses, the construction of technological production facilities, the production of high value-added products, and the emergence of new industries and professions will contribute to the qualitative growth of the Ukrainian economy. In the context of integration into the EU digital space, the regulation of digital identification and trust services should be harmonized with EU legislation, and ethical concerns regarding personal data, and cybertechnology need to be addressed through appropriate regulations.

**Conclusions**

The Ukrainian e-commerce market faces significant challenges resulting from Russia's invasion, including logistical disruptions, the partial or complete closure of numerous businesses and trading platforms, Internet outages, and a transition to a military economy, resulting in a decline in e-commerce.

To enhance Ukrainian consumers' access to digital goods and services, it is imperative to formulate a national roadmap for the development of e-commerce in Ukraine. This roadmap should bring e-commerce systems into line with those of EU countries, following the requirements of the EU's Digital Single Market. Additionally, it is necessary to constantly work on improving Ukrainian postal legislation, ensuring its harmonization with EU standards. Issues in the legal and regulatory framework also persist, which requires updating to keep up with the rapid development of ICT and to

comply with the EU-Ukraine Association Agreement.

The surge in internet fraud in Ukraine, linked to an imperfect legal framework and regulation, creates an additional obstacle to e-commerce growth. Addressing this challenge requires the adoption of relevant laws, thorough verification of e-commerce entities, and the regulation of deposit mechanisms. Despite existing legislation, various factors impede the progress of e-commerce in Ukraine. These encompass widespread smuggling and the sale of goods through online stores, illegal trade and exchange of goods, services, and content on the Internet. The current system of consumer rights protection in online shopping remains imperfect, emphasizing the need for legislative development to eliminate these issues.

The rapid evolution of online platforms necessitates substantial changes in national legislation, alongside proactive governmental initiatives to safeguard the interests of all e-commerce stakeholders. The growth of e-commerce in Ukraine is poised to stimulate economic expansion, foster investment by Ukrainian companies in innovative technologies, and enhance the overall competitiveness of Ukrainian businesses.

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## Chapter 4

# MECHANISMS FOR ENSURING FOOD, ENERGY AND ENVIRONMENTAL SECURITY IN THE FACE OF CURRENT CHALLENGES AND THREATS

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## A MECHANISM FOR ENSURING ENVIRONMENTAL SAFETY IN THE FACE OF MODERN CHALLENGES AND THREATS

https://doi.org/10.5281/zenodo.10436627

**Abstract**
*In recent years, the state administration has been de-ecologized: state support for environmental protection has decreased, and permanent reorganizations (accompanied by a reduction in the status and number of staff and budget funding) have put the state system of nature protection in a critical position. The continuation of this process really threatens the destruction of environmental structures. The current state of the environment is characterized by a transition to a global consideration of issues of the subject. The relevance of this work is due, on the one hand, to the great interest in the topic in modern science, on the other hand, its lack of development, as well as attention to the environment in the modern world. The concept of global environmental security is not yet clearly defined. In a broad sense, security is the ability to withstand threats to life, health, well-being, basic human rights, livelihoods, and the social order.*

**Keywords:** *ecological safety, environment, technologies, natural resources, socialization, ecological system, mechanisms of food security.*

## Introduction

Since the second half of the twentieth century, there has been a clear trend toward a critical assessment of the relationship between society and nature. Disturbances in the equilibrium of biosphere processes (the well-known Le Chatelier-Brown principle) caused by spontaneous human economic practices have reached planetary proportions. Anthropogenic activity has become the dominant factor in shaping the parameters of the environment.

Global climate change, decline in biodiversity and disruption of ecosystems' resilience, consequences of uncontrolled use of biotechnology (including genetic engineering), radiation and chemical pollution as a result of man-made accidents and disasters, irreversible reduction of natural resources determine the aggravation of socio-environmental tensions and social conflicts with specific environmental overtones. The observed socio-economic transformations are inherent in the accelerated movement towards global catastrophe. "If humanity does not change the paradigm of

socio-economic development, technological methods of nature exploration, the beginning of irreversible destruction of the biosphere is predicted for the middle of this century. Such a dangerous forecast forces us to rethink the traditional value and worldview foundations of human activity and to adopt a program of proactive practical actions" (Introduction to the theory…, 2002).

**Materials and Methods**

The intent of the author's analysis was based on the idea of the ecological imperative, the co-evolutionary principles of socio-natural dynamics, and the systems approach.

**Results and Discussion**

As a result of the rapid development of industry, the mutual influence of industrial regions (facilities) is currently rapidly increasing regardless of state borders, and the anthropogenic (negative) impact on nature is becoming global. In this regard, pollution of the biosphere is associated with damage to the air, natural waters, soil cover, forests, and wildlife. Pollutants enter the biosphere with emissions from industry, transport, and household waste from the production sector, and they have a negative impact on human health. This situation creates new concepts and judgments in the field of environmental pollution: regional pollution of the biosphere and local pollution.

Regional environmental pollution is defined as pollution that occurs within large areas but does not cover the entire planet. Regional environmental pollution can be caused by the operational flow of pollutants into the biosphere, if it is sufficiently long, and the emissions are released into the moving components of the biosphere into the atmosphere and natural waters. The transition of local pollution into regional pollution may be associated with the expansion of urban areas, which are gradually turning into giant metropolitan areas with many cities of many millions of people.

Pollution that is usually observed around an industrial enterprise, a large mine, is called local pollution. Places where public utilities and production facilities are located are always characterized by an increased level of pollution. Today, the anthropogenic impact of the industrial sector is causing more and more damage to nature. more

damage to nature. Annual damage from water and air pollution caused by the activities of manufacturing enterprises that have been emitting and discharging pollutants in excess of the standard over a long period of time emissions and discharges of pollutants.

Environmental safety is a social category inherent in human society, which is formed within the framework of social relations, although the relations arising in the field of environmental safety are regulated by law, and thus it has certain legal forms.

Security is one of the main human needs (Garanina & Naumova, 2014). International and domestic scientific and regulatory sources do not provide an unambiguous interpretation of the semantic meaning of the concept of "environmental safety". The National Security Strategy of Ukraine until 2020, as well as the Environmental Doctrine, demonstrate the dominance of the techno-economic aspect (On the decision of the National Security Council…, 2020; On the Basic Principles…, 2010). Ukraine's integration into the international system of environmental security is somewhat complicated by the following dichotomy, which is common in foreign practice: ecology does not go beyond bioecology, while issues of nature management and environmental protection are the domain of environmental science. The incompleteness of the definition of the category "environmental safety" gives it a declarative character.

This category is characterized, firstly, as an eternal value of human society, which is based on a certain system of guarantees of environmental safety of coexistence between nature and humans. This refers to human safety in the process of: interaction with the natural environment with hazardous substances (radioactive, chemical, etc.), use of destructive or dangerous technologies and processes, various environmental impacts, etc. However, it is also associated with processes beyond human control (natural forces of nature).

Secondly, environmental safety takes into account the laws of nature, according to which environmental objects develop. At the same time, all natural objects together create a single ecological system with internal differentiation caused by the natural characteristics of the environmental objects themselves.

Thirdly, environmental safety is controlled by the state, which

creates a whole system of special bodies. This is dictated by the objective need to ensure a safe environmental situation in the country and to achieve harmonious interaction between nature and society.

To assess sustainability, the following gradations of indicators of self-healing of natural systems are used:

– natural state – there is only a background anthropogenic impact; biomass is maximum, biological productivity is minimum;

– equilibrium state – the rate of restoration processes is higher or equal to the rate of disturbance;

– crisis state – anthropogenic disturbances exceed the rate of natural regeneration processes;

– restoration processes, but the natural character of ecosystems is preserved;

– critical state – under anthropogenic influence, productive systems are being reversibly replaced by unproductive ones (partial desertification);

– catastrophic state – the process of consolidation of a low-productive ecosystem is difficult to reverse (severe desertification);

– a state of collapse – irreversible loss of biological productivity, biomass tending to zero (Demchyk et al., 2023).

In addition to the natural and ecological classification of nature's extinction, a medical and social scale is also used, which is classified according to the following gradations

– a prosperous zone – there is an increase in life expectancy, the incidence of morbidity is decreasing;

– a zone of tense environmental situation, where the rate of anthropogenic disturbance exceeds the rate of nature's self-healing and there is a threat of radical, but still reversible, change in natural systems. Here, public health indicators (morbidity of children and adults, number of mental disorders, etc.) are significantly higher than the norm that previously existed in this place, in similar places of the country and the world that are not subject to a pronounced anthropogenic impact of the type under consideration;

– critical situation zone;

– environmental emergency zone – an area within which there is a transition from a critical state of nature to a catastrophic one.

Environmental safety is classified according to the following criteria: sources of danger, territorial principles, scale of harmful

impact, and methods and measures to ensure it.

The territorial principle includes facility, local, regional, national and international environmental safety.

The ways of ensuring environmental safety are divided into the following: technogenic and environmental, radioecological, socio-ecological, natural, economic and environmental safety. The main sources of environmental hazards are the activities of technical, chemical, biological and nuclear production facilities. Along with these facilities, hydraulic structures and vehicles can cause potential environmental damage.

The global level of environmental safety management involves forecasting and monitoring processes in the state of the biosphere as a whole and its component areas. In the second half of the twentieth century, these processes are expressed in global climate change, the emergence of the "greenhouse effect", the destruction of the ozone screen, desertification of the planet and pollution of the world's oceans.

Global environmental security management is the prerogative of interstate relations at the level of the UN, UNESCO, UNEP and other international organizations. Management methods at this level include the adoption of international acts on the protection of the environment on the scale of the biosphere, the implementation of interstate environmental programs, and the creation of intergovernmental forces to eliminate environmental disasters of a natural or anthropogenic nature.

At the global level, a number of environmental problems of international importance have been resolved. A great success of the international community was the prohibition of nuclear weapons testing in all environments, except for underground tests. Agreements have been reached on a global ban on whaling and legal interstate regulation of fishing and other seafood.

The regional level includes large geographic or economic zones, and sometimes the territories of several states. Control and management are carried out at the level of the state government and at the level of interstate relations (united Europe, CIS, union of African states, etc.).

At this level, the environmental safety management system includes: greening of the economy; new environmentally friendly

technologies; maintaining economic development rates that do not impede the restoration of environmental quality and promote the rational use of natural resources promote the rational use of natural resources.

The local level includes cities, districts, metallurgy, chemical, oil refining, mining and defense enterprises, as well as control of emissions, wastewater, etc. Environmental safety management is carried out at the level of administration of individual cities, districts, and enterprises with the involvement of the relevant services responsible for sanitary conditions and environmental protection.

Regardless of the level of environmental safety management, the objects of management are necessarily the environment, i.e. a complex of natural ecosystems, and socio-natural ecosystems. That is why the environmental safety management scheme of any level must include an analysis of economics, finance, resources, legal issues, administrative measures, education and culture.

The environmental safety assessment takes into account the proximity of potentially hazardous industries and facilities, taking into account the wind rose, the risk of suffering from disasters (both man-made and natural), local aerial features and other positive and negative factors of hazardous impact, the impact of nearby hazardous facilities, safety and deterioration of installed engineering systems.

In addition to the impact of negative factors, a person needs positive environmental factors, and their absence or lack (excess) can also be considered a negative environmental factor. Such factors include comfortable illumination, electromagnetic fields that are similar in their characteristics (intensity, dynamics, spatial orientation, etc.) to natural ones, air velocity, relative humidity, surface temperature, and thermal radiation. The assessment of air velocity is usually solved together with the task of assessing the ventilation provision in different rooms of the assessed object.

Currently, there are two main concepts of regional development in terms of environmental problems that have arisen:

– man-made (resource);

– biosphere (Pazeva et al., 2022).

According to the first concept, the solution to environmental problems lies in assessing environmental pollution, developing standards for permissible pollution of various environments, and

creating treatment systems and resource-saving technologies. Within this concept, a modern direction of specific environmental protection activities has been formed; as a system of local environmental cleanup from pollution and standardization of environmental quality indicators by a narrow (several dozen) set of indicators, as well as the introduction of resource-saving technologies.

The second concept focuses on establishing the area of sustainability of any ecosystem, which will allow to find the permissible amount of disturbance – the load on the ecosystem, to determine the thresholds of sustainability of specific ecosystems.

However, it should be noted that the conceptually new approach to environmental safety is based not so much on protection as on socio-economic development. We emphasize the syncretism of the new approach: environmental safety and social development are not opposed, but form a dialectical unity, an immanent relationship. Environmental safety is not seen as an activity concomitant with development, but inherent in it.

By the end of the last century, the understanding of environmental security as a multidisciplinary category, the essential content of which is the rationally oriented activity of public institutions, was finally formed. At the same time, on a global scale, the irrational nature of socio-natural relations still persists, since any social system can develop only by using material and energy, information and other resources of the environment (Kireitseva et al., 2023). The reason for this contradiction lies in the limitations of existing regulatory approaches to ensuring environmental safety, which, in turn, are caused by insufficient theoretical elaboration of both the category of "environmental safety" and the practices of its actual implementation.

**Conclusions**

Thus, as a result of the study, the following conclusions can be drawn:

– solving the problems of environmental safety in economic systems (national, regional, local levels) requires, along with the traditional improvements for environmental management, the introduction of a new mechanism;

– the mechanism of environmental safety management is a set of

interrelated processes of planning and implementing a green pricing policy, promotion and distribution of ideas, products and services aimed at making exchanges that meet the needs of environmental safety at the level of individuals, enterprises and the region;

– an indicator for assessing the functioning of the environmental safety management mechanism of a certain system – the ratio of the level of environmental safety of the region (as a weighted average of the levels of environmental safety of enterprises in the region) with the costs of forming, maintaining and developing this mechanism.

Thus, we understand the mechanism for ensuring environmental safety as a set of interrelated state and legal means aimed at achieving environmental safety by regulating and controlling the activities of subjects of environmental legal relations with the help of environmental and legal norms.

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# CONTROL MEASURES FOR PESTS, SPECIES IDENTIFICATION, PREVENTION OF INFESTATION, PREVENTIVE MEASURES, AND PEST MANAGEMENT STRATEGIES IN RESTAURANTS

https://doi.org/10.5281/zenodo.10436635

**Abstract**
*This article discusses methods that can be used to prevent, detect and destroy pests in restaurants. Special attention is paid to insect pests. This is an important issue for ensuring the safety of food products and protecting the health of consumers.*

**Keywords:** *HACCP, pests, deratization, disinsection, insects, control, prevention.*

## Introduction

To ensure food safety and consumer protection (Bolton et al., 2008; Dudarev et al., 2023; Zaporozhan et al., 2022) effective pest control measures must be implemented in restaurants. Integrated pest

management (*IPM*) is a comprehensive approach to pest control that combines various methods and tools to ensure effective destruction of pests with minimal impact on the environment and human health (Kloosterman & Mager, 2014).

Monitoring pest populations is a key component of *IPM* programs. It allows you to detect pests in the early stages, when they are most susceptible to control, and helps to evaluate the effectiveness of the methods used. Continuous monitoring allows monitoring the dynamics of pest populations over time. This makes it possible to apply control measures in time when pests reach the threshold value of action, which allows to minimize their spread and damage (Mul et al., 2016).

Successful food storage depends on many factors, including environmental conditions. The presence of pests can significantly change the storage conditions, and the application of control measures can lead to further changes. Pests have certain temperature and humidity limits at which they can survive. If the temperature or humidity exceeds these limits, the pests die. However, even within these limits, different types of pests may respond differently to changes in temperature and humidity. For example, some types of pests can tolerate higher temperatures than others. This means that a lower storage temperature may be required to control these pests. Similarly, some types of pests can tolerate higher humidity than others. This means that a lower storage humidity may be required to control these pests. Therefore, for successful food storage, it is important to understand the conditions under which pests can survive. This will help to develop effective control measures that will protect food products from spoilage (Bell, 2014).

**Actuality of theme**

Pests are one of the most serious problems facing restaurants. They can cause significant damage to food, equipment and premises, as well as lead to a deterioration in the quality of service and the safety of consumers. In modern conditions, when requirements for food safety are constantly growing, pest control is one of the priority tasks for restaurant establishments. Implementation of an effective pest control system allows to ensure:

• Food safety (Bilousova et al., 2023; Skrynnyk & Kuzmin, 2022);

• Preservation of equipment and premises (Moskalchuk et al, 2022);
• Reduction of risks for consumers' health;
• Increasing the level of service;
• Reduction of financial costs.

The topic of the monograph "Control measures for pests, species identification, prevention of infestation, preventive measures, and pest management strategies in restaurants" is relevant, as it meets the modern needs of restaurants and allows solving a number of important tasks.

**Materials and Methods**

In the course of the research, international regulatory documents implemented into Ukrainian legislation were used, which regulate the requirements for food safety and pest control.

**Results and Discussions**

*General requirements*. The responsible cook must regularly check raw materials and semi-finished products stored in refrigerators and freezers, which are further sold, because flies, cockroaches and rodents feed on waste, they can transfer food poisoning pathogens, intestinal infections, and helminth eggs to food products and ready-made food.

Visitors, for example, inspectors of control (supervisory) bodies, clients (customers), personnel who carry out technical maintenance of equipment, must have limited access to food processing areas (areas). These visitors must use protective overalls and comply with food safety requirements established for the public catering sector (National standards body of Ukraine DSTU ISO/TS 22002-2:2019, 2019).

Therefore, in restaurants, great attention is paid to the fight against these pests, which is carried out by disinsection (destroying flies, cockroaches and other insects) and deratization (destroying rodents) by concluding a contract with the company.

Premises must be designed to protect against pests and prevent contamination of products, drinking water, equipment, premises or roads within the premises (Codex Alimentarius CAC/RCP 39-1993, 1993).

Food waste is collected in containers (tanks, buckets, containers) that are tightly closed. All food waste should be removed daily, after which the walls and bottom of the container should be cleaned, washed and disinfected.

Sewage and garbage disposal. Businesses must have an effective system for the disposal of sewage and garbage contained in order and in good condition. All waste pipes (including sewers) must be designed to prevent contamination of drinking water. All waste pipes must be installed properly and lead to a water discharge pipe (Codex Alimentarius CAC/RCP 39-1993, 1993).

*Internal pest control measures.* Restaurant establishments constantly struggle with rodents and insects. These pests can cause significant damage to food, equipment and premises, as well as lead to poor service quality and consumer safety (Smithers, 2022).

To ensure food safety and consumer protection, effective pest control measures must be implemented in restaurants. Preventive measures in the fight against cockroaches and flies are the protection of food products from possible hatchlings and egg deposits. All products must be protected with nets, caps, and stored in closed cabinets. For this, partitions and walls of cabinets, shelves must be without gaps. In order to reduce insects, the establishment installs an electric insect killer and turns on a bactericidal lamp for half an hour after the closing of the food industry enterprise.

If necessary, the market operators introduce the following control measures: procedures for incoming water control with an indication of the frequency and method of water sample selection, types of analyzes and methods of conducting them. The periodicity and type of analyzes are based on risk assessment (Ministry of Agrarian Policy and Food of Ukraine, Order No. 590, 2012).

Pest control measures, including treatment with mechanical, biological means or chemical reagents approved by the competent authorities for use for this purpose, must be implemented in the catering establishment by personnel with appropriate qualifications and training. Appropriate records of the pesticides used must be kept (National standards body of Ukraine DSTU ISO/TS 22002-2:2019, 2019).

Electric insect killers are recommended to be placed in places where insects are likely to enter and avoid placing them over

exposed food. All pest control measures should be aimed at preventing their entry into premises where technological or auxiliary processes are carried out. Remains of crumbs, food on tables, shelves, in boxes can lead to the appearance of cockroaches. Various chemical compounds are also used to combat them.

Measures to prevent pests from entering the territory:

• availability of a fence and arrangement of the territory, sealing of doors, ventilation openings, equipment of windows with protective nets against insects;

• installation of electric insect killers, they should not be placed over open food products (Ministry of Agrarian Policy and Food of Ukraine, Order No. 590, 2012);

• installation of means of prevention and control of pests on the external perimeter and in the premises. All pest control measures must be carried out in such a way that there is no threat to the safety of food products due to cross-contamination.

To avoid cross-contamination, the use of poison baits should be avoided in areas where food (unprocessed, partially processed or processed), food processing aids, articles and materials in contact with food are handled.

Sanitary measures are aimed at constant maintenance of cleanliness at the production site and its immediate surroundings, in the adjacent territories.

In the kitchen and food preparation areas, waste must be collected in disposable waterproof bags or labeled reusable containers. The latter must be sealed or closed, removed from the production premises as they fill or after each shift, and placed (in the case of single-use bags) or emptied (in the case of reusable containers) into closable waste bins that are never brought into the kitchen.

Reusable containers must be cleaned and disinfected before reuse in the kitchen. Trash cans should be kept in separate closed rooms used only for this purpose and separated from the rooms for storing products. In these rooms, the minimum possible temperature should be maintained, they should be well ventilated, protected from insects and rodents, and convenient for washing and disinfection.

Litter boxes must be disinfected after each use. Cardboard boxes and wrappers must be disposed of immediately after emptying, under the same conditions as other waste. Garbage compactor equipment

should be located away from any food handling areas. If a garbage disposal is used, it is mandatory to use disposable garbage bags for offal and other waste. The waste chute opening must be washed and disinfected daily (Codex Alimentarius CAC/RCP 39-1993, 1993).

All food waste should be collected in garbage bags (the pedal bucket can be up to 60 % full) for daily removal from the facility.

Containers with food waste must be placed at least 25 meters from production on asphalted areas measuring 9-10 $m^2$.

Sanitary – technical measures are applied in order to block off (if possible completely) the access of pests to the premises of the enterprise.

Sanitary and technical measures to ensure the impenetrability of rodents in the building are provided for capital or current repairs.

Ventilation and all other openings, located low above the ground (20 cm and below), must be closed with a wire mesh with loops, 10-20 mm in diameter. It is necessary to constantly identify holes through which rats and mice can penetrate from the outside of the building (inside it) and cover up all discovered holes.

For preventive purposes, when fighting insects, you should systematically check the presence of cracks and close all cracks in the lower parts of walls, in floors, behind baseboards, in furniture, near heating and cooling equipment, racks and warehouses, protect window openings and ventilation openings with nets.

Staff training is an integral part of preventive measures in the fight against pests.

It is necessary for everyone to know that for preventive purposes it is important:

- close the door tightly;
- keep the premises clean;
- systematically remove garbage from the tanks (the tank can be filled to a maximum of 60 %);
- carefully collect and remove food residues and waste from production premises;
- do not leave crumbs and leftovers in the dining room and changing rooms;
- keep closets with personal belongings clean.

It should be taken into account that not only the usual rodents targeted for deratization, insects targeted for disinsection, but also

representatives of other vertebrates should be controlled: birds, cats, dogs, raccoons, foxes, shrews, etc.

The initial measure is a visual or instrumental survey, during which it is necessary to establish the type of pest, the width of its distribution, the threat of its appearance. At the same time, possible channels of entry and movement of the pest, places of residence, nutrition and reproduction should be identified.

The second measure is the preparation of special recommendations for the given territory and facilities of the enterprise on the implementation of pest protection measures, specifying the scope and terms of implementation.

The third stage is the organization of accounting, maintenance of a network of means of detection in constant readiness and assessment of indicators of the number of pests, the ecological phase of its development and movements, as well as monitoring of the pest in the places of its entry and possible residence with special means of detection.

It is necessary to appoint a responsible person and personnel who will take an active part in the constant maintenance of protective measures in working, effective condition. Designated personnel must monitor the number and placement of pest species, improving and developing measures for the prevention and destruction of pests.

The main preventive and control measures are carried out in accordance with the current regulatory and legal norms.

The equipment must be designed and maintained in such a way as to exclude the entry of birds, rodents and other animals.

The arrangement of traps for pests is presented in Figures 4.1-4.2. The names of the restaurant premises are listed in Table 4.1.

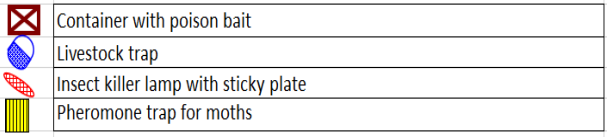


**Figure 4.1 Notations on the scheme of traps in the restaurant**

*Practical pest control measures*. They include such methods of control as: deratization and disinsection, which are aimed at combating pests that have already penetrated the enterprise.

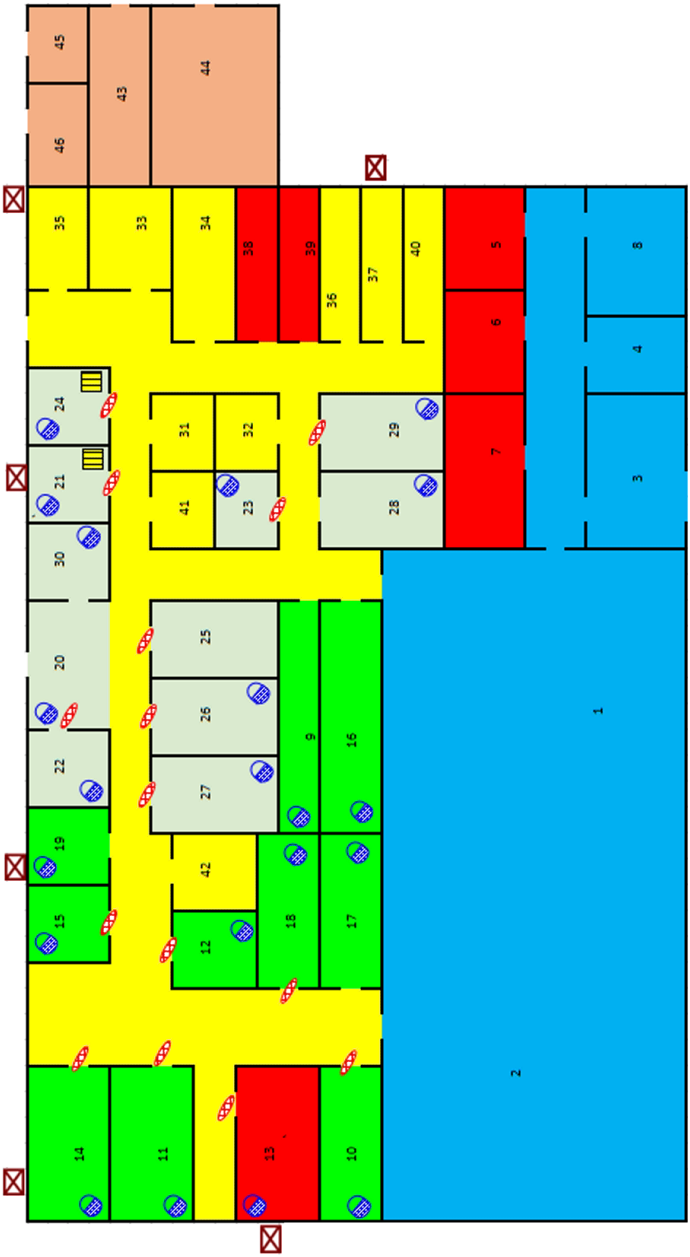


**Figure 4.2 Scheme of traps in the restaurant**

*Table 4.1*

**The names of the restaurant premises**

| No. | Name | | No. | Name |
|---|---|---|---|---|
| | **Premises for visitors** | | | **Service premises** |
| 1 | Dining room | | 31 | Director's office |
| 2 | Zone of musical atoms, audio and video reproducing, etc. | | 32 | Accounting |
| 3 | Lobby | | 33 | Waiters and bartenders' quarters |
| 4 | Wardrobe | | 34 | Staff quarters |
| 5 | Women's toilet (restroom) | | 35 | Staff wardrobe |
| 6 | Men's toilet (restroom) | | 36 | Showers for women |
| 7 | Toilet (restroom) for people with limited mobility | | 37 | Showers for men |
| 8 | Smoking room | | 38 | Women's toilet (restroom) |
| | **Production premises** | | 39 | Men's toilet (restroom) |
| 9 | Buffet | | 40 | Storekeeper's room |
| 10 | Hot shop | | 41 | Cleaning equipment storage room |
| 11 | Cold shop | | 42 | Linen storage room |
| 12 | Bread cutting room | | | **Technical premises** |
| 13 | Meat and fish workshop | | 43 | Electrical panel room |
| 14 | Vegetable shop | | 44 | Heating point room |
| 15 | Production Manager's Office | | 45 | Room for fresh air ventilation |
| 16 | Room for washing tableware | | 46 | Exhaust ventilation room |
| 17 | Room for storing and dispensing dishes | | | |
| 18 | Room for washing kitchen utensils | | | |
| 19 | Egg processing room | | | |
| | **Warehouses** | | | |
| 20 | Loading room | | | |
| 21 | Dry food pantry | | | |
| 22 | Pantry of vegetables and pickles | | | |
| 23 | Wine and vodka pantry | | | |
| 24 | Grocery Pantry | | | |
| 25 | Cooling chamber for meat and fish | | | |
| 26 | Cooling chamber for dairy and fat products and gastronomy | | | |
| 27 | Cooling chamber for fruits, herbs, vegetables and drinks | | | |
| 28 | Pantry for daily supply of raw materials | | | |
| 29 | Logistics storeroom | | | |
| 30 | Pantry for washing containers and household packaging goods | | | |

To exterminate insects, the company uses an Electric Insect Killer. This is the most practical, hygienic and effective method using ultraviolet light. An electric insect killer is installed in the production room and in the dining hall where the cooking department is located.

During disinfestation with insecticides (poisonous substances from various chemical compounds), all foodstuffs, utensils, and equipment are removed from the premises. Disinsection is carried out on a sanitary day and with the appearance of biological pests.

The following methods of rodent extermination and deterrence are used in rodent control practice: mechanical, chemical, biological, and electronic.

The destruction of rodents, which can be carriers of pathogens of food and intestinal diseases, is carried out by deratization. Since rodents reproduce quickly, they also cause significant economic damage.

In the event of the appearance of rodents, mechanical methods of their destruction (using traps) are used. Rodents are also destroyed with poisonous chemicals that are added to baits. Since these substances are also poisonous to humans, only specialists – exterminators can use chemicals and means to destroy rodents.

*Staff training*. Heads of structural divisions conduct briefings for production personnel:

• initial briefing – after putting the document into effect;

• periodical instruction – once a year;

• out-of-hours briefing – when making changes to documents and when cases of non-compliance by employees with the requirements of this program are detected.

The personnel of the facility must possess proportional knowledge of the HACCP system in accordance with their job duties (Ministry of Agrarian Policy and Food of Ukraine, Order No. 590, 2012).

*Prerequisites Program Verification*: If necessary, system verification should include a comparison of the number of final products with the number of ingredients to verify performance.

Verification activities should confirm that:

a) the prerequisites program is implemented and effective;

b) the hazard management plan is implemented and effective;

c) hazard levels are within acceptable levels;

d) input data for hazard analysis are updated;

The organization shall ensure that verification activities are not performed by the person responsible for monitoring these activities. The results of the verification must be kept in the form of documented information and must be communicated.

If the verification is based on tests of samples of the final product or direct sampling from the process, and the tests reveal non-compliance of the samples with an acceptable level of food hazard, then the organization should treat the questionable part (batch) of the product as potentially dangerous and take corrective actions (National standards body of Ukraine, DSTU ISO 22000:2019, 2019).

**Conclusions**

So, pests are one of the most serious problems facing restaurants. They can cause significant damage to food, equipment and premises, as well as lead to a deterioration in the quality of service and the safety of consumers (Yurchenko et al., 2022).

To ensure food safety and consumer protection, effective pest control measures must be implemented in restaurants.

These measures should include preventive measures aimed at preventing pests from entering the territory and premises of the enterprise, as well as practical measures to combat pests that have already entered the enterprise.

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# MODERNIZATION OF THE MECHANISM OF STATE PROTECTION OF NATIONAL ECONOMIC INTERESTS OF AGRICULTURAL PRODUCERS IN UKRAINE

https://doi.org/10.5281/zenodo.10436651

**Abstract**
*The need for systematic state support of the agricultural industry in Ukraine is substantiated, and the key directions of such support are determined. The problems are clarified and the ways of modernization of the mechanism of state protection of the national economic interests of agricultural producers are proposed. Emphasis is placed on the fact that the analysis of the effectiveness of state support should take into account macroeconomic, microeconomic and regional aspects*.

**Keywords:** *national economic interests, state protection mechanism, agricultural producers, Ukraine, instruments of state support*.

## Introduction

Agriculture is an important branch of the economy of modern Ukraine. However, due to its vulnerability to various negative influences and instability, it needs support from the state for successful development. State support is one of the key factors contributing to the growth of production in agriculture and increasing its competitiveness. The precedents of developed countries show that an active policy of agrarian state support can be an important strategic direction of development, contributing to the increase of production and provision of own products, which is the key to food security of the state and its nation.

The need for state support lies in the specificity of the national agricultural sector and is due to the following factors (Kyrylov, 2015): fluctuations in prices for agricultural products and lagging income growth rates in the agricultural sector; low elasticity of demand for agricultural products; the dependence of agricultural

commodity producers on industrial, financial, and trade capital, which operates under imperfect competition in contrast to agricultural enterprises operating in conditions close to pure competition; ambiguous regulatory state policy, which does not always have a positive impact on the development of the agricultural sector; the need to ensure the country's food security; reduction of the share of agriculture, which threatens the degradation of rural areas; significantly lower opportunities for agricultural producers to finance infrastructure development. All these features of the agricultural industry emphasize the importance of the role of the state and the level of its intervention in regulating the development of agriculture and the development of state support measures for the stabilization and development of this industry.

**Materials and Methods**

The purpose of the article is to justify the need to modernize the institutional and economic instruments of state protection of the national interests of domestic agricultural producers in the conditions of modern challenges and threats. In the course of the research, a systematic approach, methods of analysis and synthesis, deduction, generalization, logical method and others were used.

**Results and Discussion**

In our opinion, the mechanism of state support for agricultural production should be based on the following principles:

– timeliness in providing support and solving urgent issues in agriculture;

– sufficiency and control of budget expenditures intended for agriculture, as well as careful planning of budget financing;

– flexibility and transparency of the state support mechanism for agricultural enterprises and rural regions;

– taking into account regional features regarding the allocation of budget funds and the creation of a single market environment.

These principles will contribute to a more efficient and transparent use of state support for the development of agriculture.

The following state support mechanisms can be used in agriculture:

1. Tax policy. The state affects the economy by setting different tax rates, introducing tax benefits and tax exemptions. This helps to

stimulate the development of agriculture and improve the financial situation of agricultural enterprises.

2. Monetary and credit policy. The government influences the monetary circulation in agriculture through monetary measures. This may include creating conditions for the availability of loans for agricultural enterprises, lowering interest rates and other measures to improve the financial situation in agriculture.

3. Budget policy. The state allocates budget funds for various sectors, allocating priority directions for agriculture and providing significant budget allocations. This may include subsidies for agricultural enterprises, support for regional and state food funds, leasing and other measures to promote the development of agriculture.

4. Pricing policy. In agriculture, a system of guaranteed prices is used, which are set by the authorities at an acceptable level, which ensures the minimum profitability of production and the receipt of income necessary for the expanded reproduction of farms. Limit prices are also used in cases where domestic prices significantly exceed import prices, as well as to facilitate the sale of domestic products. In parallel with this, mechanisms for monitoring prices and improving their ratio are established, as well as measures are taken to regulate tariffs for the transportation of agricultural products.

5. Planning. This tool plays an important role in the agricultural support system. Includes forecasting, development of various programs and plans, which are of a recommendatory nature. Planning allows you to predict the possible consequences of decisions, develop forecasts and strategies for the development of agriculture.

6. Subsidies from the budget. This is the allocation of funds from the state budget to compensate for losses, including planned costs. For example, the state can allocate subsidies to lower food prices and ease the financial burden on consumers.

7. Support of education, health care and social policy. This support includes scientific research in the interests of agribusiness, improvement of working conditions, social guarantees for the rural population, measures to protect the environment, regulation of wages and pensions, as well as programs to support the disabled and children.

8. State order. The authorities can act as the main customer of the products of the agricultural sector, stimulating the demand for agricultural goods and services.

9. Mechanisms of restrictions and prohibitions. The state can regulate certain types of economic activity by setting restrictions, licensing and registration.

10. Foreign economic policy. This mechanism includes legislative regulation of customs rates, currency exchange rates, the use of foreign loans and investments. An important component of this mechanism is the establishment of quotas and duties on the import or export of agricultural products in order to protect domestic producers and regulate the food market.

Considering this, it is extremely important to ensure optimal interaction between state and market regulation. However, such interaction should be conditioned by the balance between supply and demand in the agro-food market, taking into account the interests of producers and consumers of agricultural products.

State support acts as one of the important factors in the successful development of agriculture. Among the main problems of state support for agricultural enterprises in Ukraine, we can mention the insufficient impact of budget measures on the development of domestic agriculture. This is because budget support programs are often not fully funded, and the rules for allocation and redistribution of budget funds for such programs often change, resulting in agricultural producers not receiving support at the time they need it. need the most. It is also necessary to take into account problems related to corruption manifestations, restrictions and complications of access to budgetary support programs for agricultural producers.

World experience confirms that sustainable, economically balanced agricultural production is based on systematic state support. Today's state support in Ukraine in the form of subsidies and subventions does not function effectively enough. The problem is that agricultural producers either cannot get the necessary financial resources due to the lack of funds allocated for them, or they receive them with great delay. The procedure for obtaining state support is often complicated and unclear for agricultural producers. Therefore, it is necessary to modernize the system of state support, directing it not to agricultural production in general, but to individual projects

determined in advance. This will ensure the high efficiency of this support.

The state should take measures to reduce interest rates on agricultural loans and create equal conditions for business in all regions of Ukraine. This can be achieved by implementing an effective tax policy and revising transport tariffs for agricultural producers. It is also important to promote the development of own sales infrastructure by agricultural enterprises, which will help reduce the influence of intermediaries in agriculture and bring the industry closer to world standards.

In addition, it is important to focus efforts on the following areas:

1. Ensuring the growth of production of high quality, competitive agricultural products, as this is an important condition for stabilizing the fodder base for animal husbandry and increasing the country's export potential.

2. Stimulating the growth of milk and meat production. This aims to reduce the country's dependence on imports of such products and provide the domestic market with quality products.

Analysis of the effectiveness of state support should take into account the following aspects:

1. Macroeconomic aspects, which include increasing the competitiveness of national agricultural products and the level of protection of national agricultural producers.

2. The regional aspect of efficiency, which is aimed at intensifying the improvement and use of regional competitive advantages, as well as increasing the investment attractiveness of the regional agro-industrial complex.

3. The microeconomic aspect of efficiency, which reflects the level of state support for agricultural producers' incomes and stimulation of their innovative activity.

State support of the agricultural sector should be implemented through the effective use of various tools, as well as mechanisms of state regulation of the agricultural sector, which are based on the concept of agrarian protectionism. The basis for the development of agricultural production in the conditions of the modern economy should be a developed institutional environment. This environment should contribute to the activation of investment-innovation and integration processes, the development of import-substituting

industries and the improvement of personnel qualifications. Mechanisms of state support for the agricultural sector should be based on such economic levers and instruments as taxes, loans, subsidies, grants, and others.

Creation of the concept of effective agricultural production and balanced state agrarian policy is based on the concept of ensuring balanced development of the economic, social and ecological spheres of rural areas. Stable development of the agricultural sector requires an active role of the state, which, using various tools, including legal regulations, controls and regulates the production and sale of agricultural products.

It is important to note that the state's support of agricultural production is a key element of national security, as it contributes to the growth of agricultural production volumes, increases the level of food consumption per capita and ensures the availability of food for various segments of the population.

Note that agricultural production in developed countries is a high-tech industry aimed at using scientific and technical achievements, and requires attention from society and state authorities. Problems arising in this area are solved both by individual scientific institutes aimed at the development of the agro-industrial complex, and by the state. In order to effectively solve these problems, it is necessary to have a strategic view of the transformational processes in the agricultural sector of the economy, taking into account both the future and the passed stages of development. That is, the agricultural sector must have a clearly defined and justified development strategy.

The experience of such countries as the USA, Canada, Japan, Sweden, Denmark, Austria, Hungary, Germany, France and others shows that the state generally supports the agricultural sector of the economy and other industries closely related to it. This is due to the fact that the effective implementation of state regulation of the development of the resource potential of the agricultural sector is inextricably linked with the functioning and development of the agro-industrial complex. This circumstance not only determines its purpose and main parameters, but also its dynamic characteristics. And therefore, a regular audit of the resource potential as a whole and its main components, adjustment of goals and ensuring the

implementation of its functional purpose, adequate to continuously changing conditions and requirements, are necessary (Lukiyanchuk, 2019).

In this context, agriculture is a key player in the agro-industrial complex, ensuring the production of food and agricultural raw materials for further processing at processing and food industry enterprises.

In developed countries, there are various instruments of state regulation of agriculture. Among them, it is worth highlighting tax, monetary and credit, budgetary, price, and social regulation. Various methods are also used, such as regulation through the establishment of restrictions, government orders, wage regulation, control of labor relations.

In addition, the system of state support mechanisms for the agricultural sector in developed countries differs not only in its focus on stimulating production, but, above all, in the fact that it is aimed at solving social problems. Among such tasks are the support of farmers' incomes, the development of rural infrastructure, and the stimulation of environmental protection measures.

One of the significant problems that complicate the development of agricultural production in Ukraine is the ineffectiveness of state policy in creating favorable conditions for the formation of cooperative and other non-commercial associations in agriculture, aimed at the production and sale of agricultural products. Even despite the existence of the Laws of Ukraine "On agricultural cooperation", "On cooperation", "On credit unions", "On consumer cooperation", as well as the Resolution of the Cabinet of Ministers of Ukraine "On measures to intensify work on the development of animal husbandry" and others, the potential for the development of agricultural cooperation in Ukraine remains unused. According to experts, the number of agricultural cooperatives is gradually decreasing, and their structure is insufficient to achieve efficiency.

Experts believe that the key reason for this situation lies in several factors. Among them are the low level of state support for the development of agricultural service cooperatives, problems related to double taxation of service cooperatives, as well as the insufficient level of professional knowledge of the management staff of service cooperatives regarding their goals and objectives, peculiarities of

economic activity and taxation. The lack of development of consumer cooperatives and the lack of support from the Central Union of Consumer Societies, as well as the low level of development of credit cooperatives and other aspects, are also indicated.

Stabilization of agricultural production and active export activity of the country on the international markets of agricultural products require the implementation of mechanisms for the formation and fixation of prices for agricultural raw materials at a level acceptable to commodity producers. Without effective regulation and effective financial support, Ukrainian agricultural production is doomed to gradual stagnation and decline. It is also important to note that Ukraine currently does not provide any support to private peasant farms, which make a significant contribution to the gross production of agricultural products.

An important aspect is also promoting the development of market infrastructure and ensuring a stable and favorable situation in the agricultural market through state interventions. In addition, it is necessary to actively support producers of agricultural products, providing them with available financial resources, in particular, by providing loans.

A high level of coordination of various instruments of state regulation, such as fiscal policy, credit and price regulation, is necessary to create an effective and integrated system capable of solving the challenges facing agricultural production. It is advisable to develop the State Program for the Development of the Agricultural Sector, covering the period of medium-term planning, which will last for five years. The specified program should determine the main directions and strategic goals of the development of the agricultural sector, including financial means and mechanisms for the implementation of the planned measures.

The structure of the State Program should include the main indicators and the forecast of the development of the agricultural sector, which will be determined in the context of medium-term forecasting. It is important to consider realistic goals, objectives, performance indicators and spending commitments. The program should also include a clear allocation of financial resources for the implementation of the set goals and objectives for each year during

the future period.

The projected State program should take into account the current challenges and opportunities of the agricultural sector, promoting sustainable and innovative development of the industry. A detailed analysis and development of an action plan for each of the five years will provide a systematic approach to the development of the agricultural sector and allow the effective implementation of strategic initiatives in this field. This process will be carried out through the use of targeted programs and other initiatives in the field of agricultural sector development. Targeted programs aimed at achieving specific goals in the industry must be implemented in accordance with current legislation. This approach allows for effective monitoring and evaluation of the implementation of the program, as well as increases the responsibility of the authorities to the public and will guarantee transparency in the implementation of measures for the development of the country's agrarian sector.

The system of state programs is a key tool for the implementation of state policy in the agricultural sector. The main goals of these programs include not only the increase in the production of domestic products, the improvement of employment indicators, the increase in wages and the expansion of the raw material market. In order to quickly solve the main problems of agriculture, the introduction of investment mechanisms in the agricultural sector is critically important.

However, the attraction of foreign investments in the development of agricultural production, as well as their volume and level of efficiency, still remain at an insufficient level due to a number of reasons. Among them, it is worth noting the insolvency of domestic agricultural producers, military actions, the instability of the political situation, shortcomings in the legislative framework and the general low level of investment attractiveness of the agricultural sector. To improve investment processes in agriculture, it is critical to improve state regulation by providing access to loans for the purchase of new equipment, the introduction of the latest technological lines.

It is also important to implement a flexible system of taxation for subjects of investment activity, which includes the differentiation of interest rates of taxes and the provision of tax benefits. This will

contribute to the improvement of the investment climate in the agricultural sector.

The optimization of state regulatory mechanisms in the agricultural sector is aimed at improving the use of its labor, natural and material resources, as well as creating an effective institutional environment for promoting innovative and investment activity of agricultural producers. The system of state regulation is implemented through a set of measures provided by state bodies with the aim of protecting the domestic market from negative external influences, achieving sustainable economic growth and forming an effective structure of the economy. In addition, the system is aimed at creating conditions for modernization and improvement of the technical and technological base of the industry and ensuring economic and social stability in agriculture.

It is worth noting that state support for the agricultural industry should be rational, that is, it should be aimed at increasing the competitiveness of domestic agricultural products and should be provided without distorting trade and creating social tension in society. The criterion of the rationality of state support can be the dependence between expenditures from the state budget and the increase in the competitiveness of agricultural products on the domestic and foreign markets, as well as the improvement of the welfare of the rural population (Kyrilov, 2015). In parallel with this, in order to take preventive measures, it is advisable to implement an early warning and response system at the enterprise, which analyzes information about hidden circumstances that may lead to the emergence of a threat in its activities (Svistun, Popova, Shtepenko, 2020).

**Conclusions**

All of the above confirms the urgency of the need to develop a clear algorithm aimed at optimizing costs for agricultural support, taking into account the limited state financial resources. The implementation of such an algorithm would open up prospects for adjusting the very structure of the distribution of state funds within the framework of the state program. This approach would make it possible to effectively take into account the needs and priorities of the agricultural sector, as well as contribute to a more rational use of

available financial resources to achieve the strategic goals of the development of agricultural production.

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**Chapter 5**

# INNOVATIVE MODELS AND STRATEGIES FOR SUSTAINABLE DEVELOPMENT OF ECONOMIC SYSTEMS IN THE NEW GEOSTRATEGIC REALITIES

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## DEVELOPING STRATEGIES OF DESTINATION MANAGEMENT COMPANIES IN CROATIAN TOURISM

https://doi.org/10.5281/zenodo.10436653

**Abstract**
*Tourism in Croatia is going through dynamic changes, with special emphasis on the growing importance of specialized tourism companies, known as destination management companies (DMC). In the paper, a comparative analysis of domestic and international intermediaries in Croatian tourism was carried out. This analysis focuses on companies' ability to understand different market conditions, on the quality of their cooperation with suppliers and partners, on the implementation of sustainable tourism practices, and on key challenges and opportunities for further growth and development. Based on the collected data, the paper clearly highlights the key and irreplaceable role of DMC in creating products, partnerships, and specialized experiences for*

*tourists. At the same time, DMC plays a central role in promoting sustainability in the tourism sector, not only in Croatia but also on a global level. The paper tries to reveal the background of complexity in the business of travel agencies, with the aim of identifying directions for future academic research and practical applications.*

**Keywords:** *tourism, destination management company, specialisations, sustainability, Croatia.*

## INTRODUCTION

In the modern dynamic and competitive world of tourism, tourist destinations are becoming key travel points, which emphasizes the necessity of effective destination management. Destination management includes planning, organization, and control of resources in order to achieve optimal conditions for the tourist experience. The important role of DMCs in this process is to create complex tourist products, balancing different interests and needs.

The main goal of this paper is to analyze how tourism companies (travel agents) manage through challenges and opportunities, with an emphasis on their strategies for service personalization and sustainability.

The first part of the paper refers to the description of the roles and activities of destination management companies. The second part of the paper analyzes the operations of national and international companies in Croatian tourism from the aspect of market knowledge, partnerships, specialized services, attractions, marketing activities, and sustainable paradigms toward market segments.

The contribution of the research is in the recommendations for cooperation between companies (a multidisciplinary approach) in Croatia, a European country that is still going through a transition period in the tourism sector, while at the same time, the destinations are overloaded with tourists. This work can help domestic stakeholders and foreign investors understand the issues that tourism causes. Stakeholder partnerships contribute to the balanced development of destinations and can bring numerous regional benefits.

The results indicate the need for adaptation through connecting with local communities and observing demand trends. Challenges at the national and international level of activity are adaptations to

trends and innovations in global tourism. Therefore, both internal and external adaptation is necessary. Digitization and technological progress, a new ecosystem adaptation, and tourism specializations will provide new opportunities for improving services and communication with clients.

## DESTINATION MANAGEMENT COMPANIES – Theoretical background

A local DMO (destination management organization) responsible for promoting a tourism destination's sustainable development will encourage the active participation of other stakeholders. Collaboration is a key factor in sustainable growth across territories and industrial sectors (Ammirato, Felicetti, Della Gala, 2014). It is not possible to achieve progress without significant challenges and obstacles, which may be different in each place, depending on local path-dependent processes of cultural, economic, institutional, and political evolutions (Romão, et al., 2021). Destination management companies (DMC) are tourism stakeholders that should act in four main areas; the organization and coordination of vertical and horizontal connection of subjects; the critical comparison of the destination level to the other destinations; the responsibility for fulfilling the basic functions of managing tourism; fulfilling the function of marketing (Bartl, Schmid, 1998). This superior tourism organization would integrate the interests of local authorities, tourism organizations, tourism supply providers, and residents (Magaš, Bašan, 2007). The contribution of DMCs can be visible in the area of the so-called MICE tourism (meetings, incentives, conferencing, exhibitions) and in the offering of new tourism products (Spasić, Pavlović, 2015).

The DMC is a model for increasing the effectiveness of the destination (Fedyk, 2018). Thus, DMCs can work closely with experts from various fields, such as geology, botany, ornithology, and archaeology, in order to enrich the tourist offer and provide special experiences. With the strategy "from experience to experience economy" this process goes above and beyond standard tourist attractions. Such initiatives can satisfy the needs and wishes of tourists with special interests, diversify the tourist offer, and attract a new target group of tourists.

Through a holistic approach and the inclusion of all stakeholders in the decision-making process, DMC can work to achieve long-term competitiveness and sustainability of the destination, taking into account economic, social, and environmental factors (Hieu, Rašovska, 2018). In the context of sustainability, European destination companies show a leading trend (regulative growth, sustainability, and specialization of tourism for smaller visiting groups). There are some differences between regions in their adaptation to changes. For example, through innovations, American and Asian tourism companies prefer fast growth and adaptation to market challenges (Ćuk, 2023). Given the dynamism and competitive challenges in the tourism sector, adaptability and innovation remain key success factors for DMC in international tourism.

Specializations can attract a larger part of today's market due to changing trends, mostly oriented toward creative cultural tourism, green tourism, tailored and luxury offers, and cultural and active tourism. In economic activity destination management companies will serve as an important factor in the future of tourism and offer transformations for both tourism sides; supply and demand. Tourism specialization is directly linked to economic growth through the increase of services such as accommodation, transportation, hospitality, and leisure activities (Croes, Ridderstaat, 2022). The DMC landscape is changing in the area of relationships, knowledge and expertise, insider access, One-stop shop offer, service and response time, digital transformation, and inventory management software (Roam, 2020). Activities such as convenience and excellence of travel agencies' services, the relevance of the physical environment, professionalism, responsiveness, and warmth are answers to the question of why travel agencies; usually small ones, will survive (Liao, 2020). However, it carries a greater risk in the case of specialization for one destination due to possible crises related to it. Smart specializations and regional innovation strategies will ensure a positive impact on tourism competitiveness in crisis situations (Romão, 2020).

## CROATIAN DMC TRENDS

Although the development of destination management in Croatian tourism has not yet reached the desired level, there are significant

steps towards improvement. The European Commission (2006) emphasizes the importance of corporate social responsibility, strong leadership, and cooperation among stakeholders, but challenges such as a lack of visual identity and inadequate infrastructure remain.

Croatia has great potential for the development of destination tourism products and companies, and this could contribute to the diversity of the tourist offer, attracting more tourists to lesser-known destinations and enriching the country's overall tourist offer (Gržinić, Saftić, 2012). In this context, the chart below reveals key data on the growth trend in the destination management sector in Croatia for the period from 2014 to 2019.

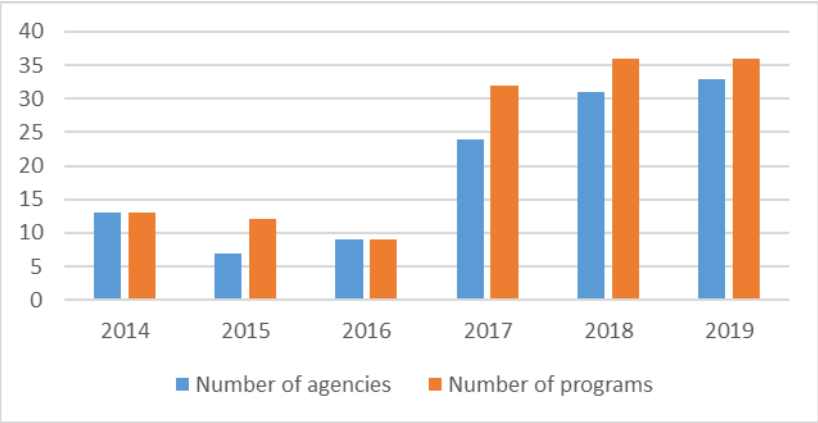


**Figure 5.1 DMC growth in Croatia (2014-2019)**

*Source: https://www.uhpa.hr*

The figure shows the growth trend in both, the number of agencies and the number of programs developed for destination management. After a minor oscillation in the initial years, a significant growth of both indicators is evident, especially from 2017 onwards. The growth trend indicates an increasing interest and engagement in the destination management sector in Croatia, which can be a positive sign for further development and diversification of the tourism industry.

It is important to note that DMC's success depends not only on meeting regulatory and operational conditions but also on the ability to create unique tourist experiences (Javor, 2021). Globally, clients

are mostly corporate, which indicates the importance of the business travel segment. Accordingly, destination management companies in Croatia should follow trends and innovations in the European tourism industry in order to adapt and remain competitive in the Mediterranean surroundings. In the context of Croatian tourism, the integration of Artificial Intelligence (AI) can significantly enhance destination management. AI's potential to create personalized travel experiences by tailoring itineraries based on traveler preferences can attract more visitors to lesser-known destinations, enriching Croatia's diverse tourist offerings. Furthermore, AI-driven technologies, providing real-time traffic updates and alternative route suggestions, could improve road trip safety and efficiency, aligning with Croatia's efforts to overcome challenges in visual identity and infrastructure. This technological advancement supports the creation of unique tourist experiences, a crucial factor for the success of Destination Management Companies (DMCs) in Croatia (Subburayan, 2023).

## COMPARATIVE ANALYSIS OF COMPANIES

The reliability, relevance, and up-to-dateness of the information were achieved on the basis of research carried out by searching on the Google search engine and direct access to the websites of individual DMCs. Domestic analyzed DMCs are *Uniline*, *Dubrovnik Travel*, *Zagreb Tours*, and *Istria Experience* which have a deep understanding of the domestic market, culture, and tradition. In most cases, using the data analysis method, was observed that companies create personalized and authentic tourism products that reflect the spirit of country. In addition, they often have strong relationships with local suppliers, enabling them to offer competitive prices and exclusive offers. On the other hand, international companies operating in Croatia, *Atlantis Travel*, *Globtour Event*, *DT Croatia – Dubrovnik Travel*, and *Liberty Adriatic*, bring global experience and access to the market. Greater marketing and financial resources allows broader campaigns and attract a greater number of international tourists, often with a focus on the luxury segment and corporate clients. The research results indicated that while domestic companies are often better positioned to provide authentic experiences, international companies can attract more visitors due to their broader marketing campaigns and global presence.

*Table 5.1*

**Comparative analysis of domestic and international DMC (Croatian tourism offer)**

| DMC features | Domestic | International |
|---|---|---|
| **Knowledge (trends, tourism segments)** | High level of knowledge about local market, culture, and tradition | Global presence (small diversification) |
| **Partnerships with suppliers** | Local suppliers, enabling competitive prices and exclusive offers | International suppliers, which can bring a wider range of products |
| **Marketing activities** | Limited marketing and financial resources | Greater marketing and financial resources |
| **Personalization** | Focus on authentic tourist offers | Less diversification of aspirations/demonstration of potential (local) attractiveness |
| **Tourism market segments** | Domestic market and tourists looking for authentic experiences | Focus on international tourism market |
| **Challenges** | Adaptation to international tourism trends and innovation | The need to adapt offers to local expectations |
| **Attracting visitors** | Less ability to attract large numbers of international tourists | Greater ability to attract more international tourists (global presence) |
| **A sustainable policy** | Preservation of local resources (nature and man-made attractions) | Standards of sustainability (socio-cultural, economic, environmental) |
| **Tourism specializations** | Focus on cultural and historical tourism (alternative tourism forms) | Tourism specializations (tailor-made offers; according to the tourism requirements) |

*Source: Authors'*

Both types of companies face challenges. Domestic companies must constantly innovate and adapt to international trends in order to remain competitive, while international companies must ensure that their offerings match local tastes and expectations. They have in common a focus on partnerships, i.e. integration of stakeholders, the introduction of quality standards and services, and a focus on the protection of natural resources and the encouragement of ecotourism. They achieve the same through the joint work of the destination's stakeholders, namely hoteliers, travel agencies, local authorities, and

other interest groups. Further development of DMC in Croatia could be achieved through investment in the development of tourist resources, promotion and affirmation of natural heritage.

## RESULTS AND DISCUSSION

Observing the dynamics and challenges faced by domestic and international destination management companies in Croatia, it becomes obvious that both types of companies have unique advantages that can bring added value to the country's overall tourism ecosystem. To explore how these strengths can best be harnessed and combined, a collaborative model has been developed that has the potential to shape future industry practice.

The following recommendations elaborates collaboration model of stakeholders in five stages, from research and planning to optimization and innovation.

- ✓ *Phase 1*: Research and Planning; Data Exchange, Market analysis, Defining goals.
- ✓ *Phase 2*: Destination product Development; Local expertise, Global perspective, Prototyping.
- ✓ *Phase 3*: Marketing and Promotion; Resource sharing, Multi-channel strategy.
- ✓ *Phase 4*: Implementation and Monitoring; Supply Chains, Performance Monitoring, Customer Feedback.
- ✓ *Phase 5*: Optimization and Innovation; Overview and Analysis, Innovation, Scaling, feedbeack towards the initial phase.

Despite the successes achieved, certain obstacles were also identified. The transformative strategies of tourism should be more strongly expressed through connecting stakeholders. Financial, legal, and coordination challenges require collaboration between DMC, the local community, and other tourism stakeholders to ensure sustainable development.

Future research on the issue should include an in-depth interview with destination stakeholders in order to examine the level of partnerships with DMC as stakeholders in the region.

## CONCLUSIONS

Domestic DMCs often have better knowledge of the local market and connections with local suppliers, which gives them competitive advantages. On the other hand, international DMCs show a greater ability to implement sustainable practices, thanks to global resources and networks. Limitations of this research include a relatively small number of recent scientific and professional works on Croatian DMC adjustments in tourism. It is especially necessary to point out that there is still a lack of field research among domestic researchers. It is also worth noting that studies that exclusively focus on specialized tourism offers are rare; they are more often part of wider editions and publications about the tourism sector.

In light of the findings of this research, it is clear that destination management companies (DMCs) play a significant role in shaping and improving the tourism sector in the Republic of Croatia. The research offers useful insights to tourism offices and local authorities, highlighting how a strategic approach can be useful in promoting sustainable tourism development through intermediaries. In addition, digitization and the use of technological platforms are recognized as key elements for increasing competitiveness and quality of services. However, to achieve long-term progress in transformative tourism, it is necessary to address structural challenges, including fund sources and legal barriers. Such findings suggest a further focus on these aspects, especially on tourist specializations.

**Acknowledgements**

This paper is a result of the scientific project „Tourism Crises – Stakeholders Roles and Recovery Strategies“, (2023-2026) supported by the Faculty of Economics and Tourism „Dr. Mijo Mirković“, Juraj Dobrila University of Pula, Croatia.

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# STUDY ON THE SUSTAINABLE PERFORMANCE OF FARMS IN THE NORTHEAST REGION OF ROMANIA USING DATA ENVELOPMENT ANALYSIS AND MALMQUIST INDEX

https://doi.org/10.5281/zenodo.10436661

**Abstract**
*Sustainable agricultural development is essential and implies smart, broad-based and intensive economic growth that includes optimal efficiency and productivity of land use, domestic resources and minimisation of non-renewable resources, achieving profitable and efficient production. Innovation and technology thus play an important role in shaping the future of sustainable agriculture, contributing to economic advancement and protecting natural resources for future generations. This paper investigates farm performance in the North-East region of Romania with a focus on financial sustainability and technological progress using Data Envelopment Analysis (DEA) and Malmquist Index methods. The DEA method is applied to measure the*

*efficiency of agricultural production units, highlighting effective management practices, and the Malmquist Index is used to assess changes in technological efficiency over time, providing insight into progress or regression in sustainable technology adoption. Through these analyses, the paper identifies farm performance that contributes to increased sustainability in agricultural production, and preliminary results indicate significant variation in farm efficiency and technological progress across the region.*

**Keywords:** *sustainability, performance, efficiency, progress, analysis*.

## Introduction

The significant evolution of farms towards improved financial sustainability demonstrates their ability to adapt and be resilient to the challenges of the changing economic environment (Galluzzo, 2021). This progress has been made possible by a strategic approach focused on increasing profitability and efficient resource management, and these improvements have not only strengthened the viability of these farms but also contributed to their long-term growth (Kortelainen, 2008).

The particular relevance of the agricultural sector to economic activities has been repeatedly highlighted as having a significant impact on overall economic growth (Bobitan et al., 2023), and agriculture has been recognised as a key driver in achieving the Sustainable Development Goals (SDGs), with measurable contributions through performance indicators.

The results of current studies on farm sustainability have highlighted the need to intensify research activities (Firsova et al., 2020), stressing the importance of investigating the concept and best practices in agricultural sustainability by promoting investment in innovation and adoption of emerging technologies (Ciușteа Butnaru, 2020). Thus, in an economic environment marked by volatility, farms have a responsibility to develop dynamic capacities to adapt quickly to market changes by identifying and assessing key factors of agriculture's contribution to economic development (Záhorský et al., 2017). Studies focusing on sustainable development models in agriculture emphasize the importance of an integrated assessment of financial health (Bathaei et al., 2023; Sood et al., 2022; Kalinowska et al., 2022) and benchmarking of financial performance, especially

in terms of profitability, technical capital, value added and investment (Wang, 2019; Brown et al., 2023; Bobitan et al., 2023).

The main aim of this work was to provide farms with valuable information and a systematic approach to their performance in order to identify and implement strategies to help them achieve and improve their financial sustainability. This focuses on the long-term financial health and viability of farms to maintain their profitability and sustain operations and growth over the long term (Burja et al., 2015).

Analysis of farm performance using indicators such as total production, intermediate consumption, subsidy balance, net income per farm, net value added per farm, net value added per farm relative to annual labour unit, average farm capital, and gross and net investment in fixed assets has provided solid premises for assessing financial sustainability (Bumbescu, 2020).

The specific performance improvement technique, Data Envelopment Analysis, has been widely used in comparable investigations across companies (Majumdar, 2017; Wang, 2019; Firsova et al., 2020; Majumdar, 2017). Using the Data Envelopment Analysis method, we assessed the efficiency of farm financial performance by measuring how farms use resources to generate financial results, particularly in terms of net income per farm, net value added per farm, average farm capital, and gross and net fixed asset investment, and based on the Malmquist index, we assessed farms in relation to changes in productivity, identifying potential areas for improvement and providing management with useful information for decision-making.

The DEA results and the analysis of value added, capital and investment provide essential information for improving profitability, resource management efficiency, financial sustainability and long-term viability, thus contributing to the continued success of farms in the North-East region of Romania.

## Materials and Methods

The approach of this paper focuses on the analysis of farm performance in the North-East region of Romania in the context of sustainable agricultural growth. It is recognized that the transition to sustainable growth patterns in agriculture requires an optimal use of

resources, supporting innovation, improving human capital and continuous farm development.

The method used for the analysis, Data Envelopment Analysis, allowed the assessment of the financial efficiency of farms based on a set of relevant financial indicators. Data extracted from the FADN and FADN database, a trusted resource on farm financial datasets at European level (Galluzzo, 2017), were used to perform the analysis. A careful sample selection was made, focusing on farms in the North-East region of Romania with relevant financial data between 2017 and 2021.

DEA input variables provide a comprehensive overview of the financial performance of farms in the North-East region of Romania, assessing aspects such as operational efficiency, value added, farm capital and investments.

The Malmquist index analysis is a tool for understanding the evolution of productivity over time for farms in the Northeast region of Romania, using a Malmquist Total Factor Productivity (TFP) Index. The Malmquist index is used to assess changes in total factor productivity over time, and its results are derived from the DEA analysis (Bobitan et al., 2023). In essence, the index reflects the distance between the productivity of each farm in a given period and the reference farms, also known as "performer" farms. (Camanho et al., 2006).

**Results and Discussion**

The study was carried out in several stages of data analysis, starting with the collection of the initial database comprising a series of financial indicators used for on-farm factor performance analysis.

Table 5.2 provides the summary statistics of the production obtained for farms in the North-East region of Romania. These statistics provide information on the distribution of the data, such as mean, median, mode, standard deviation and others, giving a picture of the central characteristics and the shape of the distribution for each variable measured.

The total production of farms in the North-East region, in the period 2017-2021, records an average of 50117.80 euros, with a minimum value of 20,802 euros and a maximum value of 80,689 euros with an asymmetry of 0.134 indicating a roughly symmetrical

distribution over the period analysed. In terms of total crop production and agricultural output, it has an average of 49,535.80 euros with a standard error of skewness of 0.913 and standard error Kurtosis of 2.000.

*Table 5.2*

**Summary statistics on production performance**

| | Total production (euro) | Total crop and crop production (euro) | Total intermediate consumption (euro) | Balance of current subsidies and taxes (euro) |
|---|---|---|---|---|
| Mean | 50117.80 | 49535.80 | 24648.60 | 9566.00 |
| Std. Error of Mean | 9607.272 | 9589.335 | 3779.048 | 1438.494 |
| Median | 51647.00 | 50859.00 | 26351.00 | 10813.00 |
| Mode | 20802[a] | 20429[a] | 10536[a] | 3829[a] |
| Std. Deviation | 21482.514 | 21442.405 | 8450.208 | 3216.570 |
| Skewness | .134 | .171 | -1.469 | -2.203 |
| Std. Error of Skewness | .913 | .913 | .913 | .913 |
| Kurtosis | 1.471 | 1.500 | 3.150 | 4.883 |
| Std. Error of Kurtosis | 2.000 | 2.000 | 2.000 | 2.000 |
| Minimum | 20802 | 20429 | 10536 | 3829 |
| Maximum | 80689 | 80227 | 33362 | 11301 |

*Source: own calculation based on FADN data using SPSS software*

Table 5.3 shows summary statistics on total subsidies excluding investments, total direct payments and decoupled payments received by agricultural holdings in 2017-2021.

The average of total subsidies, excluding investments, is €9,929.40, reflecting a weighted average of subsidies granted to the farms analysed, and the standard error of the average is 1474,996. The median, or central value of the distribution, is 11252.00, this shows that half of the farms received subsidies less than or equal to this value and the other half received higher subsidies. Total direct payments have a mean of 9,664.80 with a standard deviation of 3237.802, which is a measure of the dispersion of the data around the mean, indicating the degree of variability of direct payments.

Table 5.4 shows data on gross income, net value added, net income, net value added per annual work unit and farm income per family work unit.

*Table 5.3*

**Summary statistics on total subsidies, direct payments and decoupled payments**

| | Total grants – excluding investments (euro) | Total direct payments (euro) | Decoupled payments (euro) |
|---|---|---|---|
| Mean | 9929.40 | 9664.80 | 9225.00 |
| Std. Error of Mean | 1474.996 | 1447.989 | 1390.662 |
| Median | 11252.00 | 11000.00 | 10419.00 |
| Mode | 4039[a] | 3881[a] | 3679[a] |
| Std. Deviation | 3298.192 | 3237.802 | 3109.616 |
| Skewness | -2.218 | -2.220 | -2.203 |
| Std. Error of Skewness | .913 | .913 | .913 |
| Kurtosis | 4.935 | 4.945 | 4.881 |
| Std. Error of Kurtosis | 2.000 | 2.000 | 2.000 |
| Minimum | 4039 | 3881 | 3679 |
| Maximum | 11642 | 11403 | 10865 |

*Source: own calculation based on FADN data using SPSS software*

*Table 5.4*

**Summary statistics on the financial performance of agricultural holdings**

| | Gross income (euro) | Net value added (euro) | Net income (euro) | Net value added / AWU (euro) | Farm income / FWU (euro) |
|---|---|---|---|---|---|
| Mean | 35035.00 | 31101.80 | 21590.60 | 22748.20 | 24524.60 |
| Std. Error of Mean | 7214.745 | 6802.365 | 5323.208 | 3956.597 | 8332.846 |
| Median | 36598.00 | 32019.00 | 21764.00 | 23045.00 | 20729.00 |
| Mode | 14094[a] | 12159[a] | 8891[a] | 13046[a] | 9474[a] |
| Std. Deviation | 16132.660 | 15210.551 | 11903.054 | 8847.221 | 18632.811 |
| Skewness | .369 | .577 | 1.087 | .927 | 1.874 |
| Std. Error of Skewness | .913 | .913 | .913 | .913 | .913 |
| Kurtosis | 1.295 | 1.414 | 1.737 | 1.290 | 3.842 |
| Std. Error of Kurtosis | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 |
| Minimum | 14094 | 12159 | 8891 | 13046 | 9474 |
| Maximum | 58628 | 53953 | 40510 | 36509 | 56771 |

*Source: own calculation based on FADN data using SPSS software*

The mean gross farm income is 35,035.00 euros and the median, or central value of the distribution, is 36598.00 euros, confirming that half of the farms have lower gross farm incomes, with a positive skewness (Skewness) of 0.369, and the minimum net value added is 12,159 euros and the maximum value is 53,953 euros. The statistical analysis of the variable "net value added/AWU" provides relevant information about the distribution of this variable, thus the average is 22,748.20 euro, with the central value of the distribution of 23045.00 euro which means that half of the farms have a lower net value added/AWU, and the farm income/family labour unit (FWU) records a minimum of 9,474 euro and a maximum of 56,771 euro.

Table 5.5 presents the analysis related to the financial structure of farms, including total assets, total liabilities, net worth and average capital of farms in the North-East region of Romania.

*Table 5.5*

**Summary statistics on assets, debts and average capital of holdings**

| | Total assets (euro) | Total liabilities (euro) | Net worth (euro) | Average holding capital (euro) |
|---|---|---|---|---|
| Mean | 77504.60 | 7284.00 | 70220.40 | 63901.80 |
| Std. Error of Mean | 8854.037 | 1455.662 | 7806.453 | 7320.553 |
| Median | 85118.00 | 7367.00 | 78575.00 | 67371.00 |
| Mode | 45732[a] | 3326[a] | 42406[a] | 36993[a] |
| Std. Deviation | 19798.228 | 3254.959 | 17455.760 | 16369.255 |
| Skewness | -1.312 | .042 | -1.288 | -1.440 |
| Std. Error of Skewness | .913 | .913 | .913 | .913 |
| Kurtosis | 1.308 | -1.574 | 1.051 | 2.106 |
| Std. Error of Kurtosis | 2.000 | 2.000 | 2.000 | 2.000 |
| Minimum | 45732 | 3326 | 42406 | 36993 |
| Maximum | 95123 | 11382 | 85727 | 77713 |

*Source: own calculation based on FADN data using SPSS software*

The statistical analysis for the variable "Total Assets" shows an average of 77,504.60 euros for the period 2017-2021 with a standard deviation of 19,798.228 euros indicating the degree of variability of total assets and the average total debts is 7,284.00 euros with a central value of the distribution of 7,367.00 euros which means that half of the holdings have higher total debts. The standard deviation

of the mean holding capital is 16,369.255 euro with a skewness of –1.440, indicating a significantly negative skewness.

Table 5.6 presents a statistical analysis for two variables related to farm investments in the North-East region of Romania.

*Table 5.6*

**Summary statistics on farm investments**

| | Gross investment (euro) | Net investment (euro) |
|---|---|---|
| Mean | 3944.60 | 11.40 |
| Std. Error of Mean | 754.984 | 586.382 |
| Median | 4316.00 | -84.00 |
| Mode | 1749[a] | -2007[a] |
| Std. Deviation | 1688.196 | 1311.190 |
| Skewness | -.445 | -.897 |
| Std. Error of Skewness | .913 | .913 |
| Kurtosis | -2.224 | .814 |
| Std. Error of Kurtosis | 2.000 | 2.000 |
| Minimum | 1749 | -2007 |
| Maximum | 5541 | 1372 |

*Source: own calculation based on FADN data using SPSS software*

Gross investment recorded an average of €3,944.60 over the period 2017-2021 with a standard deviation of €1,688.196 and a slightly negative skewness (-0.445), while net investment recorded a negative minimum value of -€2007 and a maximum value of €1,372.

The analysis of the statistics indicates a relative homogeneity of the holdings in most of the financial reports, given that the standard deviation is low compared to the mean of each report, and in order to obtain a better understanding of the relationships between the different financial indicators investigated in our study, we performed a Pearson correlation matrix analysis (Table 5.7).

According to the calculations there is a very strong correlation between gross farm income and the other variables, e.g. the correlation of 0.999 with farm net value added indicates a strong and positive association between these two variables, and in general all correlations are significant at 1% or 5% confidence level, indicating strong relationships between the variables analysed.

Table 5.8 shows the Pearson correlation matrix on the financial structure of the holdings in the period 2017-2021.

The correlations indicate a significant and generally positive relationship between the variables assessed, indicating a strong

association between financial aspects of farms such as assets, liabilities, net worth and average capital, and this relationship can be attributed to the fact that farms that do not manage earnings effectively have lower discretionary liabilities, thus leading to a significant correlation.

*Table 5.7*

**Pearson correlation matrix on farm financial performance indicators**

| | | Gross income (euro) | Net value added (euro) | Net income (euro) | Net value added / AWU (euro) | Farm income / FWU (euro) |
|---|---|---|---|---|---|---|
| Gross income (euro) | Pearson Correlation | 1 | .999** | .985** | .988** | .934* |
| | Sig. (2-tailed) | | .000 | .002 | .002 | .020 |
| Net value added (euro) | Pearson Correlation | .999** | 1 | .991** | .993** | .948* |
| | Sig. (2-tailed) | .000 | | .001 | .001 | .014 |
| Net income (euro) | Pearson Correlation | .985** | .991** | 1 | .999** | .976** |
| | Sig. (2-tailed) | .002 | .001 | | .000 | .005 |
| Net value added / AWU (euro) | Pearson Correlation | .988** | .993** | .999** | 1 | .966** |
| | Sig. (2-tailed) | .002 | .001 | .000 | | .008 |
| Farm income / FWU (euro) | Pearson Correlation | .934* | .948* | .976** | .966** | 1 |
| | Sig. (2-tailed) | .020 | .014 | .005 | .008 | |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | | | |

*Source: own calculation based on FADN data using SPSS software*

A summary of DEA's results-oriented outcomes over 2017-2021 is presented in Table 5.9. The values are presented by specific categories and the standard deviation is significantly influenced by outliers, such as the highest efficiency score for the weakest holding exceeding the benchmark of 1. However, it is observed that most DMUs are closer to the efficiency frontier. The results in Table 5.9 provide an overall DEA efficiency score determined by analysing the DEA Malmquist index. Overall, the results show small changes in the technological efficiency score over the period analysed.

*Table 5.8*

**Pearson correlation matrix by farm financial structure**

| | | Total assets (euro) | Total liabilities (euro) | Net worth (euro) | Average holding capital (euro) |
|---|---|---|---|---|---|
| Total assets (euro) | Pearson Correlation | 1 | .759 | .993** | .991** |
| | Sig. (2-tailed) | | .137 | .001 | .001 |
| Total liabilities (euro) | Pearson Correlation | .759 | 1 | .675 | .825 |
| | Sig. (2-tailed) | .137 | | .211 | .085 |
| Net worth (euro) | Pearson Correlation | .993** | .675 | 1 | .971** |
| | Sig. (2-tailed) | .001 | .211 | | .006 |
| Average capital of the holding (euro) | Pearson Correlation | .991** | .825 | .971** | 1 |
| | Sig. (2-tailed) | .001 | .085 | .006 | |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | |

*Source: own calculation based on FADN data using SPSS software*

*Table 5.9*

**Overall statistics of the Malmquist index analysis**

| Period | Change in technological efficiency | Change in technical efficiency | Change in pure efficiency | Change in scale efficiency | Change in total factor productivity |
|---|---|---|---|---|---|
| 2018 | 0.83 | 0,75 | 0,80 | 0,83 | 0,87 |
| 2019 | 0.93 | 0,82 | 1.01 | 0.91 | 1.00 |
| 2020 | 1,01 | 0.89 | 1,07 | 1.04 | 1,01 |
| 2021 | 1,02 | 0.99 | 0,98 | 1.05 | 1,08 |
| Mean | 0.9475 | 0.8625 | 0.965 | 0.9575 | 0.99 |

*Source: own calculation based on FADN data*

Technological efficiency change has been steadily increasing from 0.83 in 2018 to 1.02 in 2021, on average, technological efficiency has improved overall with an average of 0.9475, and technical efficiency change has initially increased from 0.75 in 2018 to 0.99 in 2021. Pure efficiency change fluctuated, increasing in 2019, decreasing slightly in 2020, and then returning in 2021, and the average pure efficiency change was 0.965, and overall, scale efficiency change averaged 0.9575.

The change in total factor productivity has been fairly consistent, with an overall average improvement at 0.99 suggesting an overall

increase in total factor productivity over this period. This analysis shows that, on average, factors contributing to farm productivity have improved over the years, with significant improvements in technological efficiency and scale efficiency. However, changes in pure efficiency have had greater variation, indicating possible fluctuations in resource use and technology implementation in the agricultural sector over this period.

**Conclusions**

The farm performance analysis provides a detailed insight into the financial performance and sustainability of farms in the North-East region of Romania over the period 2017-2021. In general, farms in the North-East region show an average total production of about 50,117.80 euros, with fluctuations between 20,802 euros and 80,689 euros, indicating a relatively symmetrical distribution, according to the asymmetry almost equal to zero. Total crop production and agricultural output averages 49,535.80 euro, with a similar symmetrical distribution, while gross agricultural income averages 35,035.00 euro and net value added per holding averages 31,101.80 euro. Statistical analysis of variables such as net value added/AWU and farm income/FWU reveals a significant variation between farms, also a strong correlation is observed between gross farm income and the variables analysed, indicating a strong and positive association between them.

The analysis of farm efficiency, using the Data Envelopment Analysis method, shows a steady increase in technological and pure efficiency over the period analysed, indicating significant improvements in resource use, and the change in scale efficiency had an average of 0.9575, reflecting overall improvements in farm scale efficiency.

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# INNOVATION COMMUNITIES FOR SUSTAINABLE DEVELOPMENT: PRINCIPLES OF FORMATION AND POSSIBILITIES OF USE IN THE CONTEXT OF PROSPECTS FOR POST-WAR REVIVAL OF THE AFFECTED TERRITORIES OF UKRAINE

https://doi.org/10.5281/zenodo.10436668

**Abstract**
*The importance of communities in the life of society is highlight-ed, their types and criteria for formation are identified. The un-derstanding of innovative communities, their contribution to sus-tainable and inclusive development of territories and key areas of formation are revealed. The author substantiates the possibili-ties of innovative communities in the revival of war-affected terri-tories of Ukraine on the principles of sustainability, and draws attention to the institutional and socio-cultural changes that should be made in Ukrainian society to release the innovative potential of communities.*

**Keywords:** *community, innovation community, innovations, self-sufficiency, sustainability, war, war-affected Ukrainian territories, sustaina-ble innovative recovery.*

## Introduction

In the context of decentralisation and the need to revive the territories of Ukraine affected by Russian military aggression on the basis of sustainable development, innovation communities are becoming increasingly important. They are one of the manifestations of communities that have the potential to generate and implement various innovations and solve significant socio-economic and environmental problems of society. By uniting the local population around a common idea, goal, or problem, they will contribute to the restoration of various spheres of society and economic sectors in the war-affected territories of Ukraine on a fundamentally new, competitive, and innovative basis.

## Results and Discussion

In the social sciences and humanities, the concept of communities is widely used to study the peculiarities of human interaction and group activity, their impact on social, economic and environmental changes in society. Community is defined as a group of people with common social, economic, political or professional interests, who share a common history, live in a certain territory or as part of a wider society (Merriam-Webster, 2023). In other words, a community is any group of people who have something in common (Hampton, Heaven, N.d.-a.). This can be the place where people live or work, their identity – external (e.g., race) or internal (e.g., religion) – their affinity for certain activities or shared experiences or values (Simon, 2018). Therefore, when describing a community, it is important to distinguish between its geographical (territorial) context – the environment, the conditions in which the community functions – and its essential component – people, the set of relationships between them that form the community.

Depending on the criterion used to define communities, they can be groups of people who:

– live (work, have leisure) in a certain territory (in a city, village, on a separate street, in a residential complex) and unite to solve common problems and improve life in their area;

– work in the same field of professional activity, have common professional interests, similar skills and can unite to share knowledge, experience, training and develop a professional network;

– seek to achieve positive change in addressing social issues, such as the protection of human rights and freedoms, the fight against poverty and gender inequality. These communities can cooperate with government authorities and civil society organisations, organise social movements and awareness-raising campaigns to achieve their goals;

– have a common cultural and ethnic identity, including people who come from the same city, village or region, speak the same language, have a common religious affiliation, etc.

Thus, communities have different dimensions – geographical, professional, social, cultural and ethnic, to which we can also add political, economic, environmental, virtual and other dimensions. And in each case, community is not some kind of abstraction, it is people who are either similar to each other in some way, or feel a certain belonging or interpersonal connection.

As Nina Simon points out, communities can be huge and dispersed or niche and closely connected. Strong communities foster camaraderie among members, promote certain social norms, and have visible leaders. Weak communities are more dispersed and heterogeneous, and their members may not even know about each other. But a community exists regardless of whether it is strong or weak (Simon, 2018).

Charles Vogl, in its turn, describes a community as a group of people who share a common concern for each other's well-being. Typically, people associate with those who share their values, forming an environment where they do not need to explain who they are to each other and where they know that others want to help them grow. According to Ch. Vogl, is the distinguishing feature of a community and what makes it different from an ordinary group of like-minded people who only care about themselves. However, it is not always easy to see the difference between a group and a community. The difference between the two may go unnoticed until one of the group members finds himself/herself in a difficult situation. If other members come together to help him, it is a community; if not, it is a group. Sometimes it is only in emergencies that group members discover that they belong to a true community (Vogl, 2020a; Vogl, 2020b).

David M. Chavis and Kien Lee share a similar view. According to

their observations, community members feel trust in each other, their belonging to common values, tasks, and goals that unite them. They have an individual and collective sense that they can, as part of the community, influence their environment and each other. As a result, people understand who is or is not part of their community (Chavis, Lee, 2015).

Based on the considerations of Ch. Vogl, M. Chavis & K. Lee, weak communities in the sense of N. Simon are not communities if their members do not even know each other, and therefore it is unlikely that strangers will feel trust in each other and care about the well-being of others, even though they formally belong to a community. Rather, they are ordinary groups.

One of the manifestations of communities is innovation communities. In the scientific literature, they are also referred to as "innovative communities", "communities of innovation" and are used interchangeably.

It is worth noting that the phenomenon of innovation communities, as evidenced by international best practice, is an important driver of progressive social transformations. Territories around the world are facing complex socio-economic and environmental challenges, and their solution requires joint efforts and new solutions that are both innovative and sustainable. In this sense, innovation communities play a leading role.

Hari Srinivas defines an innovative community as one that has a source of creativity that can stimulate, nurture, develop and productively use people's inherent innovative qualities (Srinivas, 2020). Richard E. West defines a community of innovation as a group of people focused on creating innovative outcomes in a shared environment (West, 2014). In essence, creating an innovation community means bringing people together for a common cause, which is innovation (Hartwig, 2018). These interpretations emphasise that innovation communities should not be identified with a territory, place, building or organisation, as they are primarily people who engage in innovation and build relationships with each other about it. Cities, districts, streets, buildings, and organisations are environments for these communities, but they are not and cannot create innovations. Therefore, innovation is always a product of human activity (Srinivas, 2020). At the same time, an innovation

community should not be considered one or more individuals, as innovations rarely occur in isolation, and innovators constantly build on the work of their predecessors and colleagues (Srinivas, 2020; Mattioli, 2012).

It is also a mistake to assume that innovation communities coincide with the administrative-territorial boundaries of a region, city, village or town. In reality, innovation processes bring together people from different places and even countries who have different complementary competences, skills, knowledge, and share common interests and values. By exchanging and enriching each other with thoughts and ideas, they invent new ways of combining old and new ideas and resources, which are then embodied in new (improved) products, processes, and solutions. Moreover, these combinations are usually the result of cooperation between people who are radically different in terms of their field of activity, cultural background and views.

Cultural heterogeneity breaks down associative barriers. Cultures differ in rules and traditions, they endow their representatives with a certain way of thinking and acting. One culture is sociable, other cultures are more closed; in some cultures, teamwork is welcomed, in others - individual; some cultures recognize only secular rules and lifestyle, for others the spiritual component is of greater importance. All these norms are valuable and important in their own way, and applied together they help people overcome stereotypes and traditional ideas, avoid patterns, and, as a result, generate creative ideas and innovations (Johansson, Amabile, 2017). Therefore, overcoming social barriers caused by geographical remoteness, linguistic and cultural differences, and lack of trust, which naturally arises between different people in linguistic, cultural, and ethnic senses, is the basis of successful innovative communities.

Innovation communities are becoming increasingly popular, moving into a virtual format as digitalisation makes it easier for people around the world to collaborate and communicate, regardless of their physical location. There are many online forums and platforms dedicated exclusively to discussing innovation-related topics. One example is the OpenIDEO collaborative innovation platform, which allows its users to discuss ideas with experts from around the world on how to solve global problems. On a similar open

platform, Really Good Innovation, innovators share resources, ideas and knowledge. Other examples of virtual innovation communities aimed at engaging the public in solving local and organisational problems include CitizenLab, EngagementHQ, Crowd Gauge, IdeaScale, and MindMixer. Although the participants of virtual communities do not know each other personally, on such platforms they have the opportunity to group around a specific problem and support each other. Some participants can turn to others with their difficulties, while others can provide psychological support, share experiences, useful information and advice on how to solve similar problems.

Communities can exist in formal and informal forms (Wool, 2021). Formal innovation communities include organisations that are legal entities and are officially registered in accordance with legal requirements, such as research centres or science parks. Informal communities (such as free software development communities; gaming communities; professional development groups; writing, design, and art groups; sports communities) are important for those people who do not have access to formal organisations or do not identify with them due to, for example, inequality. For those looking for inclusive spaces, informal gathering places (professional training courses, online forums, coworking spaces, art spaces, sports clubs, etc.) can be a place of self-expression, mutual support and personal development. They contribute to the formation of social ties and a sense of belonging, expanding the network of contacts and strengthening interaction between different people and groups.

The formation of innovative communities at the local level creates opportunities for inclusive development of territories, as these communities: (1) build a sense of trust and respect for each other, create a friendly atmosphere of mutual understanding and solidarity through the establishment of social ties, constant communication and joint efforts of people; (2) increase the social capital of the territory through the development of friendly relations and close relationships between people; (3) promote professional growth, learning and self-realisation by enriching each other with knowledge, ideas, opinions, sharing professional experience, and jointly mastering new skills; (4) by involving various participants and stakeholders in innovation activities, especially local residents,

they make innovations inclusive and therefore accessible to all people, regardless of their social status, health status or gender; (5) provide support to community residents – whether psycho-emotional through a sense of security, belonging to a group, communication and exchange of views, which helps to reduce stress and anxiety, gain resilience to the challenges of change, or in achieving common goals and realising common interests; (6) allow finding non-standard and at the same time simple ways to solve problems in remote rural areas.

In the context of a growing global population (Worldometer, 2023) and the related problems of ensuring more efficient and rational use of limited natural resources and environmental protection, self-sufficient innovative communities – autonomous, sustainable settlements – are of interest. Self-sufficiency is an important characteristic of a community, which means its ability to exist and develop with the help of internal resources, knowledge and creative potential of its members, without significant external assistance and to meet its own needs. Territorially, such communities can cover all or part of the territory of a settlement. Sustainable territories are those that aim to balance and achieve harmony between economic needs, social justice and environmental protection, and take into account the impact of their actions on the quality of life of the local population and neighbouring settlements, their environment and economic security.

The Masdar Eco-City in the Emirate of Abu Dhabi can serve as an example of building an environmentally friendly, economically attractive and socially cohesive community where innovative solutions contribute to harmonising the interaction between people and the environment. The development concept of this city envisages the creation of an urban innovation ecosystem that supports the development and implementation of sustainable solutions. For example, houses in Masdar City are built from low-carbon cement and use 90% recycled aluminium; the city's buildings consume 40% less energy and water compared to buildings in other cities. The basis of Masdar City's innovation ecosystem is a free zone, which is home to educational and research organisations and global technology companies from around the world. They work together to implement innovative environmental solutions in energy, transport, medicine and other areas (Masdar City, 2023).

Based on international experience (Masdar City, 2023; SleepGreen, N.d.-a.), the key areas for the formation of self-sufficient sustainable innovation communities at the local level may include the following:

– the development of a closed-cycle local production system for growing own food in settlements, generating own energy and recycling own waste;

– the redevelopment of public space into areas free of cars and public transport, aimed at creating an environmentally safe space through the introduction of environmentally friendly technologies and innovative approaches in all areas of the settlement's life – from construction to production;

– adherence to the principles of environmental efficiency;

– rational use of natural resources, minimisation of harmful emisions and waste, use of renewable energy sources, conservation of biodiversity, and consideration of the environmental consequences of decision-making;

– the creation of a socially friendly environment by organising thematic events and activities, improving public parks and playgrounds, organising regular meetings for communication and exchange of ideas, which would create a sense of solidarity, camaraderie, belonging and collective identity among residents;

– ensuring participatory governance through active involvement of residents in decision-making processes, discussing the prospects of the settlement development with each other and with local authorities;

– creation and implementation of non-standard, improvised and at the same time simple ways of solving socio-economic and environmental local problems to ensure sustainable development of the settlement.

Self-sufficient innovation communities are of ecological and socio-economic value to both the local and global economy and society. They embody the revolutionary concept of creating autonomous eco-settlements, aiming to develop a fully closed-loop territory, create conditions for a sustainable lifestyle and address the acute global environmental and socio-economic challenges of humanity, such as climate change, world population growth, inequality, poverty, resource scarcity, and environmental pollution.

## Conclusions

Today, more than ever, Ukraine needs to develop innovative approaches to the post-war revival of the war-affected territories. Thus, the total amount of direct damage and losses caused to Ukraine by the aggressor country during the year of war (from February 2022 to February 2023) reached USD 423.8 billion. The frontline regions suffered the most damage and losses: Donetsk, Kharkiv, Zaporizhzhia, Luhansk, Kherson, and Mykolaiv regions (The World Bank et al, 2023). Given the catastrophic consequences of Russia's military aggression for Ukraine, it is necessary not to wait for the war to end, but to develop new approaches for the sustainable innovative revival of Ukrainian territories.

Ukraine should abandon the pre-war raw material orientation of its economy in favour of creating an economy with a socially oriented, environmentally friendly, smart, innovation-oriented type of industrial production with highly productive jobs. In implementing deep structural changes, special emphasis should be placed on the advanced development of technology-intensive manufacturing and knowledge-intensive service industries, and the incorporation of the principles of resilience, sustainability, regeneration and circular economy into policy and governance at all levels, from the state to the level of territorial communities. The state's priority should be to protect its own production and use its own raw materials and labour force, support science and education, stimulate innovation and entrepreneurship, and develop modern infrastructure.

Depending on the individual needs of the territories, it is advisable to apply different models of their economic, social and environmental resuscitation and reconstruction, since there can be no single template approach to the restoration of territories. Innovative communities should play a leading role in these processes, contributing to the development of individual new ideas and solutions aimed at economic recovery, social rehabilitation, infrastructure development, environmental sustainability, and cultural revival of the war-affected Ukrainian territories.

Communities in Ukraine need to evolve from being mostly passive observers and consumers to active participants in the process of revitalising the communities in which they live. There is potential

and opportunity for this, as the decentralisation reform in Ukraine has revealed the ability of Ukrainian society to effectively self-organise and join forces at the local level, and even more so in times of war. Together, this requires introducing openness in public administration, establishing partnerships between local authorities and the local population, encouraging entrepreneurship, social and environmental local initiatives, disseminating successful innovative practices and sustainable lifestyles, developing public awareness and activism, which will ultimately help to engage the local population in decision-making and implementing projects to revive regions and communities.

**Acknowledgements**

The article was prepared within the framework of the research project of the Ministry of Education and Science of Ukraine "Organisational and economic support for post-war sustainable development of territories based on infrastructure and service methodology for the development of innovation communities" (State Registration No. 0123U100271) and the research project of the National Academy of Sciences of Ukraine "Recovery and development of scientific and innovative potential of Ukraine in the post-war period" (State Registration No. 0123U100631).

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# SOCIAL AND INDIVIDUAL LEVELS OF TRANSFORMATIONS IN THE TRANSITION PERIOD

https://doi.org/10.5281/zenodo.10436672

**Abstract**
*The features characteristics of the period of forced changes are examined at the social and individual levels. The characteristics of complex changes are presented in unity with structural dynamics. Studying the structure and features of movement systems allows us to draw conclusions about optimizing management influence. In the context of future-diagnostics, the possibilities of an effective balance of socio-economic strategy, tactics and operatives are being studied. The abilities of reflexive regulators leading to increased adaptability of social systems are shown. The possibilities of strategic socio-economic programming of the effective development of the society system are considered from the point of view of global evolutionism. The identification of key and tangible points of the formation of the state orbit is taking place. Conclusions on ways to improve the reforms are offered.*

**Keywords:** *individual, society, cultural-civilizational world, transformation, transition period.*

## Introduction

The signs of fundamental changes on a global scale are growing in the transformations of both the social structure and the world order. The comprehensive realization of fundamental changes adequate to the new era is no longer a question of "if", but "how", "in what forms": in particular, in the model of superiority over others and uniformity, or mutual enrichment and partnership of different, but equal, equal and equal. Of course, actors are required to show resilience and flexibility to take advantage of increasing trends and prevent (localize) emerging threats. The ability to combine

manoeuvring and maintaining the fundamental foundations of development and security is one of the conditions for fruitful adaptation to new realities. **The purpose of this paper** is identifying and characterizing the features of a transforming system at the social and individual levels of its organization and structuring.

## Materials and Methods

The text is based on materials, firstly, characterizing large-scale transformations of post-global reality, secondly, analysing the differences between cultural-civilizational worlds: in their internal organization and international interaction, thirdly, devoted to the formation of a methodological tradition in relation to increasing the diversity of paths developing and realizing solutions that explore the range of possible fruitful responses to the challenges of history. The use of these layers occurs in the unity of concrete historical and abstract historical approaches in the study of material, the interweaving of practical and theoretical development of reality.

## Results and Discussion

Of course, the formation and realization of a development strategy responds to the characteristics of periods and cycles in the life of an individual, the cultural-civilizational world and humanity. One of the significant tasks of strategy in general and post-globalism in particular is the ability to use the logic of historical changes (Kugler, 2006; Naisbitt & Aburdene, 1991; Shedyakov, 2023b). It is known that sociocultural integrity with its development algorithm is an organic combination of essences-laws, various phenomena-forms and social-informational phantoms. At each specific moment, it has elements that are completely adequate to it, as well as adapted (structures, rudiments and germs, deviant behaviour). All of them in one way or another are subject to the laws of the system; their position is determined by the quality of social ties that arise and their orientation. The set of social-informational systems is divided into different classes of supersystems, including global, international, national, macro- and micro-regional, separate organizational structures. They are based on management objects (people, relationships and processes). In order for the systems to operate effectively, they must be specially organized (structured) to exercise

managerial influence. As a rule, for the successful management of processes, it is necessary to have a management system corresponding in its complexity and structure to the managed system. A certain duality of the state of the social-informational system is a consequence of the need for autonomy, on the one hand (function of self-management), and on the other hand, coherence of actions of systems determined by integrated interests (function of coordination). The purpose of the self-management function is to determine and maintain (regulate) the target (initial) characteristics of the system regardless of its structural features, while the coordination function is to determine and maintain the values of the characteristics of connections (relationships) of lower-level systems, necessary for the fulfilment of integrated interests.

The dynamics of the initial characteristics of the object of management influence of the self-management circuit is much weaker than the dynamics of the initial characteristics of the subordinate objects considered in the coordination circuit. The creation of the conditions for the desired transformation is complemented by the synergistic properties of social structures. Including adaptation (self-organization) of the 1st type, when the state of relations changes, and of the 2nd type, where transformations affect the content of interaction processes, up to the emergence of new relations to support (replace) the disabled. Therefore, the very content of any social information system combines fundamentally stable and topically dynamic blocks, the interaction of which enables the expansion of the reproduction of social information processes and the alienation of their content and / or form. The main stages of this are the formation of contradictions, needs, interests, abilities and values.

However, if the social system has integrity, then non-systemic social integrity lacks it: it is a conglomerate, mosaic object in advance. The first is mainly constituted by the social-personal beginning, the second – by the individual-psychological. The first assumes the inequality of parts and the hierarchy of the organization, the second – the equality of elements and harmony, the absence of a predetermined scale and standard. Nowadays these differences are not absolute: the social system becomes a special type of system object, formed not by atoms-ingredients, but by connections (these

are polysystems). At the same time, connections have a probabilistic, stochastic character; their determination is not causal, but often synchronous. As a result, this model typologically converges with the variant of non-systemic social community. If the social system completes the history of the socio-personal era, then the non-systemic social community opens the individual-psychological era. During the period of transformation of society, their features overlap and overlap.

And if the conditions of Tradition and Modernity "dissolved" a person in a common destiny, now a much larger range has been created for personal choice. In addition to the question of fundamental primacy, there is also the topic of actual priority. In particular, the choice of priority for the individual, the cultural-civilizational world and humanity is made: intellectual stress for the needs of bodily pleasures or physical efforts for the sake of moral-spiritual development (Lloyd, 1989; Shedyakov, 2023a). Moreover, on the one hand, the degree of regularity of a phenomenon, as a rule, is opposite to its spirituality, on the other hand, the essence of the experienced transformations is also associated with the transition to the priority of the spiritual-mental principles of activity, without which life itself is threatened. The inversion of changes, on the one hand, requires the involvement of the broad masses of workers in management processes; on the other hand, it emphasizes the role of the state in optimizing the security and development of society. We are not talking about chaotic and arbitrary charity of entrepreneurs and non-profit organizations, but about a systematic change in the entire course of society. Using the range of networking opportunities can stimulate both the growth of socio-political chaos and the strengthening of national states that are able to integrate the basic value-sense complexes of their cultural-civilizational worlds with the fundamental innovations of the era. Recognizing the naturalness of radically different cultural codes does not at all mean an automatic managerial attitude toward discord and confrontation. On the contrary, differing subjects are interested in complementarity (and therefore in interaction). Awareness and determination to consistently be guided by the true deep interests of the people is an obvious condition for effective modernization, especially reflexive modernization. On the contrary, it is the deep conviction in the self-

worth and self-sufficiency of one's own that correlates with the readiness to accept what is foreign. Developed and tempered by thousands of years of historical experience, the ability to think in broad social spaces, while maintaining freedom of religion and sociocultural styles, develops a "civilizational tact" and forms the harmony of diversity. This achieves a model of integration without dissolution; peoples are reunited while preserving the characteristics and characteristics of each of them, complementing each other. However, when you find yourself on the wrong side of history, it is difficult to resist the temptation to oversimplify what is happening. Meanwhile, the violence against the people derived from it is not only futile due to its ineffectiveness, but also deeply immoral in essence. Basic value-sense complexes and the morality based on them are destroyed only together with the people themselves.

In the presence of an ideal, super-individualistic understanding of man and society embodied in the system of information interactions. It is super-individual, super-egoistic and other "transcendent" factors that often turn out to be decisive at the macro- and micro-levels. Behind the illusion of the supremacy of everyone's consumer interests, the rigid and extremely alienated will of the "techno structure" is easily visible, which tries to impose on individuals their consumer (often reduced to biology) stereotype. And the disintegration of the person and individuality to the level of the individual, the dominance of the biological over the social – this is the degradation of man and ethnicity. This, in particular, requires moving in the study of social interactions from the abstract and simplified scheme of "economic man" and assessments of pragmatism / utilitarianism to a more complete concept of "creative man", which allows studying social relations, including on the basis of socio-cultural styles and the historical memory of the people.

Systemic transformations: post-industrial, post-global, post-modern – manifest themselves as a set of institutional changes (and, above all, the cultural environment), which take society beyond the framework of industrial forms of organizing life activities. The influence of the cultural environment on the emergence and perception of technological and economic innovations becomes important. Humanized technologies are obviously not socially neutral; already at the design stage, they contain a conscious

orientation towards the development and enrichment of the culture of society. Accordingly, the importance of the cultural-civilizational world in the organization of socialization / individualization structures increases.

The formation and realization of an effective post-modern strategy for security and development of society involves a flexible combination of the use of objective and subjective factors, cyclical-wave-like and uniquely irreplaceable processes, general patterns and specific conditions (primarily risks and opportunities), in the optimization of which the incremental value increases, dissemination and using of knowledge. If what happens during the period of forced transformations significantly influences both the intrigue of subsequent events and the emerging "orbit" of further development, then the transition itself has a significant impact on the adequacy of the era of transformations of the cultural-civilizational world, primarily in the technical-technological, socio-economic and moral-spiritual levels. Moreover, their optimization absorbs sociocultural dynamics, connects traditions and innovations of society. Increasing the importance of flexibility and adaptability of social-information systems draws attention to expanding the range of diversity of methods, forms, and stages of development of each social-information system (Castells, 2010; Herrnstein & Murray, 1994; Shedyakov, 2019, 2020; Trout & Rivkin, 2008). Understanding and using a set of features allows you to create additional foundations for expanding capabilities, increasing benefits and preventing / localizing threats (Mintzberg, 2007; Sarrazin, 2010; Shedyakov, 2022). After the binary confrontation between the camps of capitalism and socialism (plus the developing countries of the "non-aligned movement"), as well as the historically fleeting triumph of the "pax Americana" that did not offer any creative prospects, humanity found itself at a fork in the road. Historical and personal time is again faced with a cardinal choice. Change is inevitable and obvious. But the forms and results are not obvious and probabilistic: everything will be determined in the confrontation of many forces, when, in addition to patterns, accidents will have an impact. The transition to a descending orbit is fraught with a global catastrophe. And the burden of decision falls on those living today: delay, like a mistake, is fraught not just with "lost benefits" or strategic loss of

one of the cultural-civilizational worlds, but with the death of the ecumene. The reflexive use of feedback, systems of social automata and regulators is a necessity to increase the survival and adaptability of a sociocultural organism, especially in demand when making an inter-paradigm transition. But the forms of foreign approaches in the local form is not only concentrated in the layer of compradorism / collaborationism, but also aggravates imposture (including oligarchs), directly or ultimately forced to emphasize the power bloc and form a police state to parasitize the people. There are two ways of restoring the regulation of the basic processes of integrity: through the caste or socialized structure of society, each of which is associated with its own idea of the normative, fair and desirable in the way of life, the directions of individual and social change, the structure of production, distribution, exchange and consumption . The gigantic power of humanity will be subordinated to the tasks of either enslavement or creation; either to the idols of accumulation / consumption, or to the ideals of creativity; take place either in the irresponsible manipulation of a handful by everyone else, or in genuine democracy and civic engagement. Be guided by the approach “everyone around is either a servant or an enemy to me” or “let a hundred flowers bloom...”. To subordinate transformation to the whims of a few at the top of the “food chain” or to the embodiment of the sacred ideas for humanity of development, justice, equality, fraternity, freedom. And the problem is not so much in geostrategic engagement in itself, but in its false quality, open apologetics and ideological disorientation, leading on a historical scale to the betrayal of the fundamental interests of the people.

On the one hand, this means the formation and emphasis of the corresponding principles of socio-economic life, regardless of subjective desires and awareness of what is happening. On the other hand, understanding the essence of processes and the limits of effective influence on them allows one to become a collective subject of strategic transformations. The successful formation of an image of the future, including strong social standards, serious social guarantees, the revival of basic value-sense complexes of cultural-civilizational worlds, increased responsibility of both the state and government top managers, expansion of the public sector and government regulation, creates elements of the concept of society,

state and economy common good, increasing the socio-economic instruments of justice. A Super-project is a form of not only structuring security and development of the economy and society, but also integration (in particular, harmony of interests), generating a sense of belonging with the historical achievements of the people. And if the mission and responsibility of the elite is to reflect the national interests and will of the people, then the responsibility of the people themselves is to carry their ideas about what is fair, moral, and normative, through which creativity becomes an ascension to the best (Truth, Goodness and Beauty). Accordingly, countries that demonstrated high achievements in all areas of social life, as a rule, were based on a broad unification of the efforts of various segments of the population on the tasks of civil harmony and achieving a conciliar social order. Humanity and humaneness naturally take precedence over the dogmas of any doctrines: the main regulator is the law "do not interfere."

The state is an instrument that is extremely necessary in conditions of strategic uncertainty, but it is much more important than goals and objectives; the instrument must be adequate to the era and in good working order, but what is more important is who will use it and for what. As before, there are two powerful priorities for socio-economic development and defining indicators of social progress. Firstly, it is human life, its quality and duration. Secondly, it is the achievements of civilization, cultural heritage. The objective historical need for pro-social development and realization of the talents of the maximum number of citizens focuses on strengthening not just the "state" as such, but specifically a socially responsible social state. Of course, cultural and civilizational worlds have developed their own models of mutual responsibility of the state and people, measures of their rights and responsibilities, as well as forms of popular control over the activities of state functionaries. The compliance of statehood with the people's idea of what is just and proper and the expectations of the population is assessed, for example, in terms of a "people's" state.

Previous eras of world-historical development: within the framework of the cultures of Tradition or Modernity, presupposed following the canons of one specific approach in structuring reality. Success was expected from the search and most complete application

of one model – up to the tracing of specific forms of organization of the public and private sectors. Post-globalism focuses on the diversity and independence of cultural-civilizational worlds, states, and economic entities: it is the understanding of the nature and diversity of one's own conditions of security and development that ensures the realization of opportunities and the protection of one's niches. Moreover, subjects both gravitate and have the opportunity to provide themselves with the necessary socially important information to form a mosaic of approaches, structures and forms, choosing and cultivating what is convenient and necessary specifically for them. Including carrying out their actions based on the analysis of the entire world-historical process. Of course, such "selectivity" of decisions in the search for answers to current historical challenges both increases responsibility for one's destiny, the life of one's people, and provides enormous opportunities for the implementation of adaptability of the social system.

At every moment there is competition between different levels of social-information systems (for example, cultural-civilizational worlds). This competition occurs, in particular, through improving internal structuring and through external interaction. Economic, social-informational, spiritual-cultural, religious-ethical means, as well as special operations methods, are increasingly being used (Blackwill & Harris, 2016; Luttwak, 1987; Perkins, 2016; Rushkoff, 1996; Shedyakov, 2021) with the increase in the destructive power of weapons of mass destruction. However, the final effectiveness of introducing the "social-informational virus" depends significantly on the features of bureaucratic and innovative organization models, the influence of communication networks, the phase of socio-economic development, etc. At the same time, the organization of asymmetric effects of information systems through the text involves the following levels: primary processing of the object of individual or social influence by the information flow – up to the creation of new values in it; self-programming of the object to generate a new virtual reality that hides the real one, which is strengthened through the formation of "centres of crystallization and transmission of action" using psychophysical influences prone to certain effects; the generation of socio-informational realities of a cognitive and ontological nature with the activation of animal motives embedded at

the genetic level and the corresponding system of images; consolidation and spread of hybrid reality, interspersed with illusory and real elements. The development of managing someone else's behaviour can be supplemented by the running in of mass-action technologies with the help of cultural templates. Information presented in a certain way can have a very specific effect even without the so-called subliminal methods. At the same time, the problem of the interpretation of images opens up opportunities for the use of various rationalization of the results of the perception of symbolic series. At the same time, in order to improve the quality of consciousness processing when organizing the asymmetric informational influence of social systems, it can be useful in every possible way to promote the rejection, localization, variable interpretation of valid information. For this, it is important to drown in informational noise and disavow any glimpses of knowledge about the actual state of affairs, replacing them with bright surrogates and creating illusions of the presence of reliable knowledge. Ensuring the breadth of the range in the selection of ways to optimize social development is carried out, including, thanks to the diversification of models and signs of progress. So, for example, "horizontal" interests are recorded in regional dominant unions, "swarm" business structures, the growth of the number of "managerial" organizations, and the strengthening of the influence of social networks on business.

**Conclusions**

The cataclysms of the beginning of the 3rd millennium are a feature of parting, at the same time, with both the social structure and the world order receding into the past. During an inter-paradigm transition, both social and individual mutual connected levels of transformation are significant.

After a transformational crisis, not only those who have suffered less or have the necessary resources (including human) will be in relative gains, but, first of all, those who can take the initiative in building new social institutions, protect their parameters in the world order, their point of view and approaches to the prospects of social life.

The degradation of the heritage of past years and the loss of

foreign policy subjectivity are strongly interconnected. Instrumental means have already been created and continue to be produced, which are aimed at achieving other goals that are more acceptable for the ecology of man, society and nature. At the same time, if earlier peoples, countries and states competed with each other, some for the implementation and binding to their conditions of a model that looked like it would give advantages, and some for a place in the wake of the most successful, now fundamentally different models, approaches, tools that develop deliberately asymmetrical responses to historical challenges. The quality of adaptability to ongoing changes and the nature of the transformation orbit are a function of the professionalism and integrity of those who provide the balance of strategy, tactics and operational art. The prerequisites for radically different preferences have been created both at the social and personal levels. Moreover, if the biological, physiological-material world carries within itself the grounds for depersonalization, then at the ideal level everyone is different. And the question is whether the possibilities of moral-spiritual potential are used for the sake of the pleasures of bodily life, or whether bodily existence is subordinated to the tasks of moral-spiritual improvement; a person becomes closer to the bestial, animal principle of life – or to the divine. Directions for the implementation of economic power associated with the destruction of the cultural layer of civilization or with an attack on the rights and opportunities for creative self-realization of a person (especially his life) cannot be considered effective. And cases of almost privatization of the capabilities of states by certain groups of people for their own purposes are absolutely unacceptable.

The reflexive using of feedback, systems of social automata and regulators is a necessity to increase the survival and adaptability of a sociocultural organism, especially necessary when realizing transformations of inter-paradigmatic depth and scope.

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**Chapter 6**

# GLOBAL EXPERIENCE AND PRACTICE FOR ENSURING SUSTAINABLE DEVELOPMENT AND SECURITY OF ECONOMIC SYSTEMS IN THE FACE OF CURRENT CHALLENGES AND THREATS

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## MECHANISM FOR ENSURING INTERNATIONAL SECURITY IN NEW GEOSTRATEGIC REALITIES

https://doi.org/10.5281/zenodo.10436679

**Abstract**
*Currently, in the new geostrategic realities, the issues of formation and development of the international security environment have become acute. For this, it is necessary to take into account modern challenges and threats to the national security of most countries of the world, changes in the international security system in the context of the activation of globalization and European integration processes.*

*As a result of the study, it was proved that ensuring the national and international security of the countries of the world can be achieved only by using scientifically based and clearly formed concepts, which should be based on a certain theoretical basis (hypotheses, theories, tools, research methods, etc.). The development of scientific research on ensuring international security through the analysis of publication activity using the scientometric database Scopus is considered. The existing theoretical approaches to defining the essence and content of the concept of "international security" have been analyzed, summarized, and systematized.*

*On the basis of a critical analysis, the essence and content of the concept of "mechanism for ensuring international security" was clarified and its main constituent elements were determined. It is proposed to understand the mechanism as an interconnected set of socio-economic relations, principles, methods, forms, approaches to managing the development of the security environment from the standpoint of ensuring an adequate level of international security.*

*The proposed mechanism is an integral part of the international security system in a stable security environment, which should: 1) be based on certain principles, functions and tasks; 2) to provide for the systematic use of a set of specific measures to implement the set tasks, which must be used not separately, but comprehensively and promptly. The key stages of the implementation of the mechanism for ensuring international security in the conditions of modern challenges and threats have been determined.*

**Keywords:** *global security environment, world geopolitical transformations, international security, system of international relations, international security structures, European security strategy, geostrategic realities, foreign policy, concept, genesis, theoretical aspect, conceptual approaches, systematization, threats, challenges, risks, national interests, national security, security mechanism, strategic priority.*

## Introduction

Today, the issue of researching the conceptual, organizational and management foundations of international security has acquired a new sound and exceptional relevance in the scientific community. Therefore, the search for new methods, tools and mechanisms for ensuring international security, taking into account modern

challenges and threats, substantiating and developing an appropriate research methodology are extremely important for increasing the effectiveness of the practical implementation of the foreign policy of the countries of the world.

In view of this, the issue of theoretical generalization of scientific approaches to the concept of "international security" and the determination of mechanisms for ensuring its appropriate level in the context of the transformation of the security environment remains relevant today and requires further research and deepening of improvements in this direction.

**Materials and Methods**

As part of the project "Role and place of Ukraine in promising European and Euro-Atlantic security systems", implemented with the support of the Hans Seidel Foundation, the sociological service of the Razumkov Center conducted an expert survey on August 24-31, 2022. 44 leading Ukrainian and 10 foreign experts were interviewed. The main scenarios for the formation of the future international security system include:

1) strengthening of subregional (sectoral) unions, alliances and reformatting of existing institutions based on agreements between new entities (Europe – 76.5%; Euro-Atlantic – 66.7%);

2) preservation of the existing security institutions with their significant reformation and increase in the role of subregional entities (Europe – 74.5%; Euro-Atlantic – 84.3%);

3) disintegration of existing and formation of new pan- and subregional alliances, situational coalitions (Europe – 27.5%; Euro-Atlantic – 19.6%).

From February 1 to 5, 2023, the sociological group "Rating" commissioned the International Republican Institute of the USA (IRI) to conduct a survey through telephone interviews of 2000 Ukrainians throughout Ukraine (except the occupied territories of Crimea and Donbas). As a result of the survey, it was established that 82% of respondents were in favour of Ukraine joining NATO (59% in April 2022), and 85% were in favour of joining the EU. In addition, it was found that 56% of Americans consider the war in Ukraine to be a "critical threat" to US national interests.

According to research by the Chicago Council on Global Affairs

(CCGA), it was determined that the war in Ukraine changed the way Americans view the modern world, shifted the focus of their attention to European security and the vision of priorities in US foreign policy. American support for NATO and American military bases in Europe is currently at the highest level. 50% of respondents believe that Europe is the most important region of the world for the security of the United States. The majority of respondents support the entry of new NATO members Sweden (76%), Finland (76%), and would also support the entry of Ukraine (73%) and Georgia (67%).

It should be emphasized that an expert survey was conducted from February 26 to March 15, 2023 (40 experts are employees of research scientific institutions and organizations, teachers of higher education institutions, specialists in international relations of the Ministry of Foreign Affairs of Ukraine, the Office of the President, regional administrations), which was conducted by the sociological service of the Razumkov Center as part of the MATRA Program project, financed by the Embassy of the Kingdom of the Netherlands in Ukraine. It was found that 90% of experts positively evaluate the foreign policy of Ukraine in the conditions of war. Evaluating the effectiveness of the state's foreign policy in various directions, the experts gave the highest marks to the policy of strengthening relations with the countries of the world and international organizations (95% consider it effective); improving the international image of Ukraine, its authority in the world (92.5%); promotion of Ukrainian initiatives on international platforms (90%); integration into the European Union (87.5%). In addition, 77.5% of experts consider Ukraine's integration into NATO effective policy, 72.5% – regarding the protection of the rights of Ukrainians abroad.

The majority of the population trusts the EU and NATO (respectively, 65% and 59%). In the case of the UN, the trust level is 42%. For 77% of respondents, it is important that Ukraine is part of the EU. At the same time, only 27% of Ukrainians prefer an accelerated pace of EU integration and support the approval of all EU laws and requirements. Only 22% of respondents believe that Ukraine is already ready to join the EU, and 43% believe that further reforms are necessary. These are the results of a survey of 2005 respondents in all accessible regions of Ukraine (except temporarily

occupied territories and inaccessible due to security), which was conducted by the Kyiv International Institute of Sociology in the period from September 4 to 20, 2023.

On June 5-15, 2023, the Democratic Initiatives Foundation named after Ilko Kucheriv, in cooperation with the Center for Political Sociology, and the Civic Network "Opora" conducted a survey of 2,001 respondents in most regions of Ukraine (in Zaporizhzhia, Kharkiv and Kherson regions – only in those territories that controlled by Ukraine and where hostilities are not taking place). It was revealed that 54% of the population of Ukraine chooses to join NATO among possible security guarantees for the country. Support for other alternatives looks like this: agreements on strategic defence cooperation with several NATO member countries (16%); neutral status provided by international guarantees for the sovereignty of Ukraine (10%); rate exclusively on own forces and defence industry, without international guarantees (8%). It is safe to say that Ukrainians are primarily interested in joining NATO as a way to protect them from Russian aggression.

From September 29 to October 9, 2023, the Kyiv International Institute of Sociology conducted an All-Ukrainian poll of public opinion "Omnibus". 1010 respondents living in all regions of Ukraine (except the Autonomous Republic of Crimea, some districts of Donetsk and Luhansk regions) were interviewed by the method of telephone interviews using a computer based on a random sample of mobile phone numbers (with random generation of phone numbers and subsequent statistical weighting). According to 59% of respondents, Ukraine's membership in the European Union is of the greatest importance for ensuring long-term security. That is, in all regions of Ukraine, the respondents primarily determine the security motives for supporting European integration.

Although the absolute majority of respondents support joining both the EU and NATO (and these processes are connected and parallel for Ukraine), nevertheless, Ukrainians form an idea of what is a higher priority for the country at the moment. Thus, 54% of respondents emphasize that membership in NATO is currently a higher priority. They prefer membership in the EU – 24%. At the same time, in all regions there are more people who prefer NATO to the EU.

So, the survey results confirm that guaranteeing security is recognized as a top priority for Ukraine. These, in turn, are the biggest drivers of support for European integration. At the same time, the priority between the EU and NATO shows that the top factor is the formation of an appropriate security space.

For the first time, the concept of "international security" was enshrined in the Treaty on the Renunciation of War as a tool of national policy, or the so-called Bryan-Kellogg Pact, adopted on August 27, 1928. This concept meant the institution of the prevention of wars and their prevention. Currently, the above-mentioned term is widely used in the Charter of the United Nations, resolutions of the UN General Assembly, resolutions of the UN Security Council, decisions of the UN International Court of Justice, documents adopted by international organizations, as well as in agreements concluded between UN member states, legal documents, adopted at the national level, and the doctrine of international law.

However, with quite frequent use, there is no universally recognized definition of international security in international documents and the doctrine of international law. International legal acts focus attention on the main goal of international security – its provision and call on states not to carry out such actions that pose a threat, including those of a military nature, to the peaceful existence of another state.

Conflicts between states are proposed to be resolved by peaceful means, enshrined in Article 33 of the UN Charter. At the same time, there is no legal definition of the term "international security" in these documents either. For example, Article 1 of the UN Charter states that the United Nations is called upon to maintain international peace and security and to this end take effective collective measures to prevent and remove threats to the peace and to suppress acts of aggression or other violations, and to do so by peaceful means, in accordance with the principles of justice and international law, settlement or resolution of international disputes and situations that may lead to a breach of peace.

Similar statements are contained in resolutions adopted by the UN General Assembly (Declaration on Strengthening International Security) and the UN Security Council (UN Security Council Resolution No. 2118 (2013) on placing the Syrian chemical weapons

program under international control and elimination), as well as agreements between member states of the UN. Therefore, international security is a certain state of international relations, in which maintaining peace and security is the most important goal (Zvieriev & Prykhnenko, 2021).

The scientist V. Shamraieva (2018) emphasizes that for a detailed study of the main approaches to the study of international security, it is necessary to analyze the models around which the main discussions take place. At the same time, two approaches to the classification of international security are the most common. Models of international security, which are separated within the framework of the first approach, are determined depending on the number of subjects of the security system. They include four main models: unipolar security system; "concert of states"; multipolar model; global (or universal) model. The second type of international security models is determined by the nature of relations between the participants of similar security systems. Within its framework, collective security, global security, and cooperative security system are separated.

In addition to independent concepts of security formation (state hegemony, neutrality, isolation), some authors indicate different concepts of international security formation (Rotfeld, 1990). International experts prepared a report of the UN Secretary General in 1985, which proposed four concepts: equilibrium/balance of power; scare; collective security and joint (global) security; neutrality, non-participation and peaceful coexistence (Fehler, 2003).

Concepts of international security are analyzed mainly in the context of two main trends in the study of international relations: neorealism and neoliberalism. The first is based mostly on classical theories of the balance of power, interpreting international law and international institutions as auxiliary functions in the interaction of states – the main actors of international relations. Proponents of neoliberalism are more optimistic about the prospects of a new international order based on the balance of not only forces, but also interests (Tymkiv, 2011).

Most often, four basic concepts of international security are described in the scientific literature: the concept of balance/balance of power; the concept of global/common/comprehensive security; the

concept of collective security; the concept of cooperative security (Rotfeld, 1990; Stańczyk, 1996; Fehler, 2003; Malendowski, 2004).

Balance of power is a category with many meanings applied to define concepts, doctrines, principles, situations or security systems over a long period of history. This concept was interpreted in different ways: a policy aimed at supporting defined military relations; the real situation of interstate military relations; approximately the same distribution of forces, any distribution of forces. Variants of the balance of power in the last century were the bipolar system and the "balance of fear". The balance of power is characterized by a concept of security in which power is distributed among states or allies in such a way that no one of them decisively dominates the others, but rather counteracts the possibility of excessive growth of power by any other state or alliance.

A. Rotfeld (1990) writes that the concept of balance of power often refers to a system (of international relations) in which states agree on activity and mutual adjustment of forces, which can be reflected in agreements that contribute to reducing or increasing the arms race. According to the opinion J. Stańczyk (1996), the concept aims to organize a certain coordination of the actions of individual subjects of international relations (states or other groups), with the aim of balancing their military potentials, which, of course, does not reduce the concern of individual states to strengthen their own forces. The concept of the balance of power combines two opposite functions: guaranteeing stability in the relations of subjects of international relations (interstate or union) and preventing the dominance of one subject over another, which is perceived as a possibility of imbalance.

Although the balance of power has repeatedly contributed to the strengthening of peace, the need for its creation, defence or restoration has often justified the beginning of war. In a period of tension, the balance of power system could cause the threat to grow. Instead, in the years of easing of tension, it stabilized the situation, and then non-military factors of balance: economic, cultural, and civilization became more important. At the same time, its specificity is ephemerally. Its individual elements undergo constant changes; this applies to military potential and political influence, as well as economic power, the constant development of technologies,

demographic changes, and other factors (Rotfeld, 1990).

An analysis of the concept of the balance of power highlights its shortcomings: the desire for balance causes tension and stimulates an arms race; excessive demonstration of power factors in international relations; implementation by superpowers of policies that are unfavourable for the interests of smaller states; promoting the formation of a coalition and the image/perception of the "enemy"; restriction of freedom of manoeuvre in the foreign policy of small and medium-sized states. And the main drawback of the concept is that it makes security dependent on military power and stimulates an arms race, especially nuclear weapons, creates tension and deprives the participants of mutual trust, and also increases the risk of war (Tymkiv, 2011).

The idea of global/common/comprehensive security became known after the publication in 1982 of the report of the Independent Commission on Disarmament and Security, prepared at the initiative of social democratic politicians under the leadership of Olof Palme (often this report is called the Palme report). The credo of the Palme report is "we face common dangers, so we must take care of our security together" (Common Security, 1982).

According to the concept of global security, only cooperation and joint action can guarantee the safe development of nations. Global dependence in international relations makes it impossible to create one's own security at the expense of the security of other participants in these relations. The principles of global security are: joint prevention of joint threats; understanding the interests of the "other party" and treating it as a partner; expanding consultations and increasing forms of international cooperation; development of compromise solutions without restrictions in public life; development of demilitarization and joint agreement on arms limitation issues (Fehler, 2003).

The concept of collective security is the most developed (Kelsen, 1957; Malendowski, 1983; Gullikstad, 1994; Stańczyk, 1996; Fehler, 2003). It is based mainly on the international legal obligations of states in the field of maintaining peace and security (prohibition of aggression, peaceful settlement of disputes). It requires members of the international community to collectively confront violations of international security (willingness to join forces against any

aggressor). Supporters of this concept are representatives of the neoliberal school of international relations. In the first half of the 1990's, many well-known Western political scientists advocated the need to create a regional system of collective security in Europe, the basis of which would be the Conference for Security and Cooperation in Europe (Flynn & Scheffer, 1990; Kupchan et al., 1991; Betts, 1992; Joffe, 1992; Goodby, 1993; Krause, 1998) (before 1995, the CSCE; now, the Organization for Security and Co-operation in Europe, OSCE) and even together with the OSCE, NATO and the UN (Zięba, 2004).

The concept of collective security is based on the belief that the traditional system of international security, based on the balance of power, does not meet the needs of interdependence, and it is necessary to create a system with stronger security guarantees. This idea materializes together with the development of a community of interests guaranteed by expanded international law and developed global and regional security and cooperation organizations. Each system of collective security, in addition to the political and legal foundations, requires the formation and functioning of relevant structures and the proper preparation of participants for functioning within the limits defined by the rules. The main idea of collective security boils down to a positive understanding of national security by all states of a specific international system, ensuring international security and guaranteeing international peace (Tymkiv, 2011).

A condition for the effectiveness of the collective security system is the widest possible participation in it of states operating on a partnership basis (without discrimination). This system can be universal or regional in nature (covering the states of a separate region). The universality of the system of collective security provided for in the UN Charter, according to many scientists, has not yet been achieved (Stańczyk, 1996; Malendowski, 2004).

The term cooperative security emerged during the Cold War disarmament negotiations between the two blocs. In the context of the verification of disarmament treaties, this term meant the admission by the State concerned of an on-site inspection. The provision of cooperative security should consist in counteracting the excessive accumulation of means that could serve as an armed aggression against the sovereignty and territorial integrity of another

state. This required a general acceptance of the limitation of military power (Carter et al., 1992; Hadler & Hayes, 1994; Czaputowicz, 1999).

The term cooperative security was also used in discussions at the UN in the first half of the 1990's. He recreated a complex of signs and ways of responding to security problems. At that time, cooperative security was understood as: broad and multidimensional; based on mutual guarantees, not on intimidation; open to membership, not exclusive; one that favours multilateral solutions over bilateral ones; one that uses both military and other, non-military means; one based on the fact that states are the main subjects of the security system, but there may also be other subjects, namely formal security institutions; one that emphasizes the development of "dialogue skills" in multilateral negotiations (Czaputowicz, 1999).

The goals of the concept of cooperative security can be summarized as follows: an effective response to regional threats; prevention of conflicts and crises through diplomatic means and military presence; the possibility of settlement and resolution of conflicts, if they erupt; providing cooperative means of various forms of aid (administrative, humanitarian, etc.) in the post-conflict period. The basis for creating a system of cooperative security is the listed goals, the very fact of cooperation (cooperation), and the interest of individual institutions in the European security system. Therefore, the term cooperative security also expresses the institutional (organizational) model of the security system in Europe, formed after the end of the Cold War. Jane Nolan draws attention to this feature: "cooperative engagement is a strategic basis that consists in trying to achieve goals through institutional consent rather than through the threat of material or physical coercion" (Nolan, 1994).

In science, three main approaches to the interpretation of the components of the concept of cooperative security have been developed. For American authors, representatives of the Marshall Center R. Cohen, M. Michalka (2001), cooperative security is a strategic system created around the core of democratic states. The security of individual states is linked by four mutually reinforcing concentric circles of security, at the center of which is individual security related to the protection of human rights in individual states. The second circle is collective security, which ensures the peace and

stability of democratic states. The third circle is the collective defence of system members against external threats. The fourth circle – strengthening stability – consists in active participation with the help of political, economic and military means for greater stability in territories with an increased conflict-causing factor.

Other American researchers A. Carter, W. Perry, J. Steinbruner (1992), representatives of the Brookings Institute claim that cooperative security is "a mechanism for deterring aggression by creating counter-threats and defeating the person from whom it originates". Measures aimed at achieving cooperative security must be taken after the consent of the parties, not imposed by force, and cooperative security itself must be based on premises that are perceived as legitimate by the public. Such actions should be open (inclusive) in the sense that all countries have the right to join them. And the countries themselves undertake, in their turn, to observe the spirit of cooperative security, to participate in the development of its rules. They emphasize that the system of "cooperative security" should neither take the form of a separate comprehensive political regime, nor an arms control agreement, nor seek to create an international government.

Cooperative security, in their understanding, does not pretend to destroy all weapons, prevent all forms of violence, and harmonize all political values. Its purpose is to prevent the accumulation of means for serious, deliberate, organized aggression. Scholars view cooperative security as a model of interstate relations in which disputes may occur but will be governed by the constraints of agreed norms and procedures.

And finally, cooperative security can be depicted using the so-called security triangle, the concept of which was proposed by O. Weaver (1994). The most important international organizations are located at the vertices of this triangle: NATO, the EU, and the OSCE. Each of these organizations is responsible for its own area. In addition, behind individual institutions there are states that see their place and influence in individual organizations differently, due to which their potential role is determined in different ways. The level of support for an institution depends not only on the function it performs, but also on the level of state influence in this organization.

So, theoretically, the cooperative security system is a system in

which international organizations are of the greatest importance, and only through them can the interests of individual states be seen.

Based on the above, the following conclusion can be drawn. It was established that the proposed approaches to the concept of cooperative security, although graphically they look complete, still cause significant doubts. Thus, the concept of cooperative security is based on the principles of strengthening security through cooperation and has a system of collective security as the main element at its core, but already with developed political and legal mechanisms.

So, we are dealing with a concept that interprets the strengthening of international security as a multi-stage process of development of European relations, and even wider ones in the Euro-Atlantic sense. The ideas of cooperative security converge with the ideas of global security, and some authors even understand them as equivalent. To date, the ideas of cooperative security continue to be implemented by the OSCE and other Euro-Atlantic organizations, including NATO. And that is why it is possible and necessary to build a fundamentally new model of the European security system on the basis of cooperative security.

**Results and Discussion**

The article examines the evolutionary development of scientific research on the problems of ensuring international security based on the analysis of publication activity using the Scopus scientometric database. According to the concept of "international security" in titles, abstracts and keywords, 29676 documents were found for the period 1943-2023 (Figure 6.1).

As the analysis showed, the first publication on the selected topic appeared in the international scientometric database Scopus in 1943. This is the article "Education for International Security" (Kefauver, 1943). The author argued that prominent leaders in the field of education in the United States and representatives of many other countries should consider and study policy documents on education on an international basis in order to develop strategies for ensuring peace and security throughout the world. This was discussed at the International Educational Assembly held in Harpers Ferry, West Virginia, September 14-17, 1943.

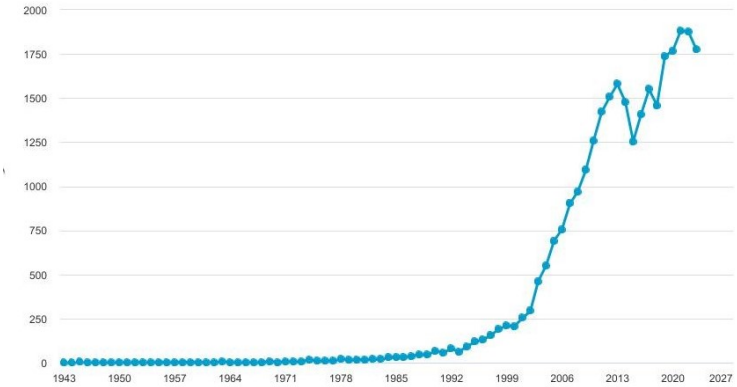


**Figure 6.1 Dynamics of the number of scientific publications in the scientometric database Scopus, which highlight the problems of international security for 1943-2023**

*Source: built on the basis of data from the Scopus scientometric database*

The analysis shows that from 1945 to 1973 a fairly low level of publishing activity was observed. And only since 1974, the works of scientists began to appear in the scientometric base (Sollie, 1974; Andren, 1977; Cusack, 1985; Sewell et al., 1985; Muscat, 1990; Simon, 1995 and others), which draw attention to various problems of ensuring international security, formation of a security environment and development of security policy and foreign policy of many countries of the world, taking into account the peculiarities of their socio-economic development and international economic relations.

Among the most cited publications, the book by R. Keohane (2005), which was cited 2222 times in the scientometric database Scopus, deserves special attention. The author analyzes the institutions, or "international regimes", through which cooperation has taken place in the world political economy and describes the evolution of these regimes as American hegemony has eroded. Refuting the idea that the decline of hegemony makes cooperation impossible, R. Keohane views international regimes not as weak substitutes for world government but as devices for facilitating decentralized cooperation among egoistic actors. In the preface the author addresses the issue of cooperation after the end of the Soviet empire and with the renewed dominance of the United States, in

security matters, as well as recent scholarship on cooperation.

Among the key publications that publish works on the problems of ensuring international security, the following can be noted: International Affairs (170 documents), International Social Security Review (161), Jane S Defence Weekly (158), Australian Journal Of International Affairs (151), Pacific Review (140), International Politics (134 documents) (Figure 6.2).

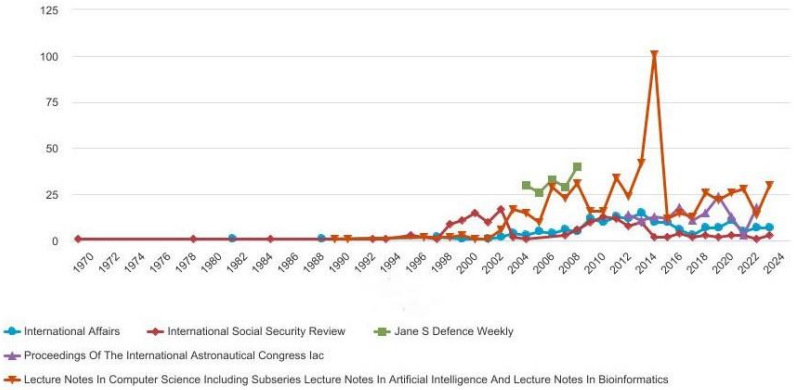


**Figure 6.2 Dynamics of the number of scientific publications by sources**

*Source: built on the basis of data from the Scopus scientometric database*

There are 26 documents of the researchers C. Blanchard and K. Katzman in the Scopus database; 24 – P. Kerr; 22 – C. Seelke; 20 – J. Nichol; 18 documents each – A. Bellamy, R. Margesson, B. Sovacool and others (Figure 6.3).

Key organizations involved in solving the problems of the formation of the international security space are University of Oxford (222 documents), King's College London (217), The Australian National University (188), London School of Economics and Political Science (155), University of Cambridge (145 documents) (Figure 6.4).

The results of the analysis show that most of the works on the researched issues are published by scientists from the USA (7236 documents), Great Britain (3554), Australia (1452), Germany (1419), China (1284), Canada (1209) (Figure 6.5). In Ukraine, 371 documents were found based on the established search details.

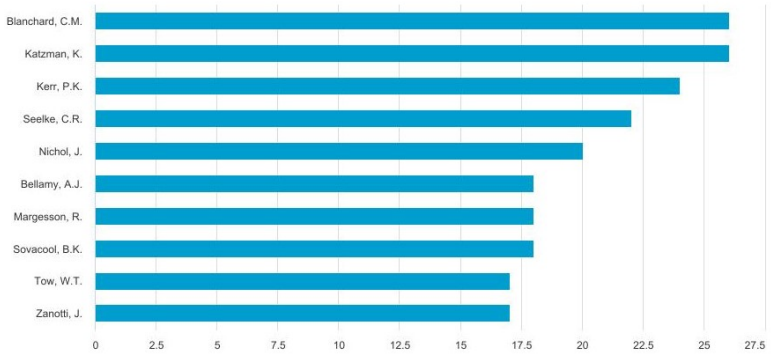


**Figure 6.3 Dynamics of the number of scientific publications by authors**

*Source: built on the basis of data from the Scopus scientometric database*

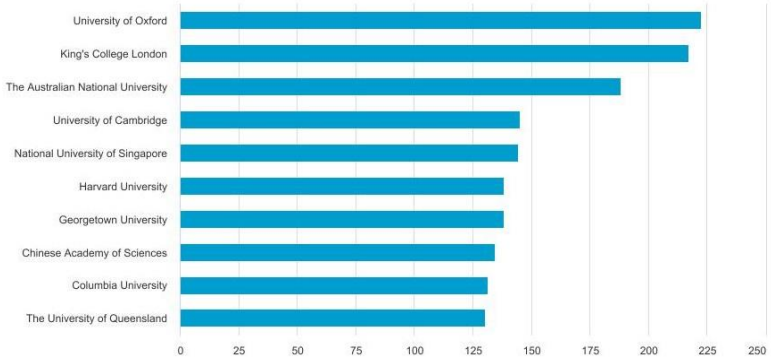


**Figure 6.4 Number of scientific publications by organizations**

*Source: built on the basis of data from the Scopus scientometric database*

The number and specific weight of scientific publications by types of documents are given in the Table 6.1.

For the most part, scientific works on the studied issues are published in the following fields of knowledge: Social Sciences (18857 documents), Engineering (3446), Computer Science (2935), Economics, Econometrics and Finance (2934), Environmental Science (2859), Business, Management and Accounting (2311 documents) (Table 6.2).

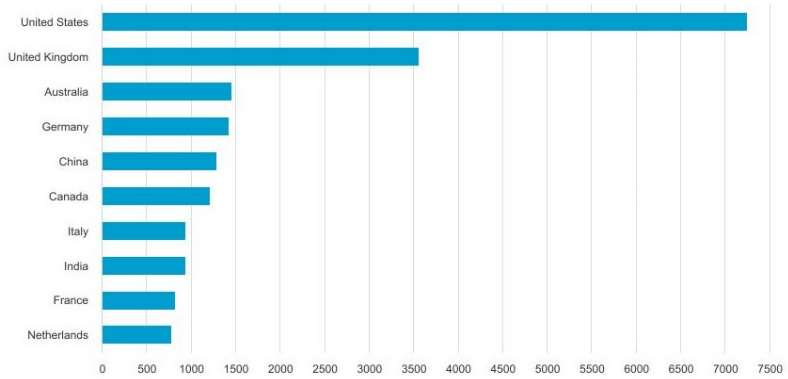


**Figure 6.5 Number of publications on the different aspects of ensuring international security**

*Source: built on the basis of data from the Scopus scientometric database*

*Table 6.1*

**Number and specific weight of scientific publications by types of documents**

| Types of documents | Number | Share of scientific publications, % |
|---|---|---|
| Article | 16385 | 55.2 |
| Book Chapter | 5042 | 17.0 |
| Conference Paper | 2800 | 9.4 |
| Book | 2168 | 7.3 |
| Review | 1874 | 6.3 |
| Conference Review | 858 | 2.9 |

*Source: built on the basis of data from the Scopus scientometric database*

The main sponsors that finance scientific publications on issues of international security are: European Commission (280 documents); National Natural Science Foundation of China (211); Economic and Social Research Council (129); National Science Foundation (126); Horizon 2020 Framework Programme (118) (Figure 6.6).

Based on the above, we can come to the following conclusion. The concept of "international security" is an interdisciplinary and multifaceted category. Globalization processes are increasingly affecting international security. They determine the main trends in the development of the global economy and politics, and also lead to

radical changes in the international security environment, which is becoming more dynamic and controversial. At the same time, as a result of research (Bezpartochna et al., 2022; Bezpartochnyi & Trushkina, 2023) it was established that the complexity of multidirectional factors operating in the global international environment require the justification of fundamentally new conceptual approaches to security.

*Table 6.2*

**Share of scientific publications by fields of knowledge**

| Branch of knowledge | Share of scientific publications, % |
|---|---|
| Social Sciences | 40.6 |
| Engineering | 7.4 |
| Computer Science | 6.3 |
| Economics, Econometrics and Finance | 6.3 |
| Environmental Science | 6.2 |
| Business, Management and Accounting | 5.0 |

*Source:* built on the basis of data from the Scopus scientometric database

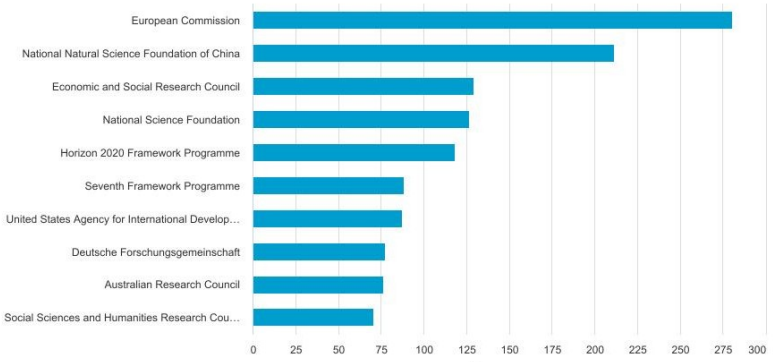


**Figure 6.6 The number of documents by the main sponsors who financed the publications**

*Source: built on the basis of data from the Scopus scientometric database*

On the basis of a theoretical generalization of existing scientific developments regarding the conceptual apparatus, it was established that scientists, as a rule, understand international security as a system, component, condition, external factor, norms, conditions, mechanism, etc. (Trushkina, 2023).

For the most part, scientists interpret international security as: the state of international relations; component of international relations; system of international relations; the system of international treaties and agreements, which ensures the preservation of peace based on the recognition of sovereignty and inviolability of borders; the state of security of the states of the world and the entire world community.

One should agree with the views of scientists who define international security as a state of international relations in which proper conditions are created for the existence and functioning of states while ensuring their full sovereignty, political and economic independence, and their equal relations with other states.

This term is closely related to the development of critical infrastructure (Kyzym et al., 2022; Khaustova et al., 2023; Trushkina et al., 2021), for the effective and sustainable functioning of which it is necessary to create appropriate conditions of security and protection against exogenous and endogenous threats and risks (natural disasters, armed conflicts, ecological, man-made, military disasters, cyber threats, cyberwars, terrorist attacks, etc.).

Therefore, under the concept of "international security" it is proposed to consider the state of protection against various threats of vital critical infrastructure objects in the context of ensuring the national interests of states and the effective development of the system of international economic relations between them in the conditions of globalization.

## Conclusions

For the formation of the international security environment, it is advisable to pay attention to the development and implementation of appropriate mechanisms for ensuring national security in different countries of the world (Bezpartochnyi et al., 2023; Kwilinski, 2018; Kwilinski & Trushkina, 2023; Pushak & Trushkina, 2023).

Based on the generalization of existing theoretical approaches to the definition of the concept of "mechanism", it is proposed to consider it as an interconnected set of socio-economic relations, principles, methods, forms, approaches to managing the development of the security environment from the standpoint of ensuring the appropriate level of national security of the state in the international

security system.

The mechanism for ensuring national security is a system of means by which effective influence is exerted on social relations and social processes that have been threatened, in order to protect the vital interests of society and the state. These means include: regulatory framework; various tools (methods, methods, techniques) used by security subjects to solve priority tasks.

The characteristics of the mechanism of ensuring national security also provide consideration of the stages of implementation of this type of activity for the protection of vital interests. These stages include:

1) formation of interests, the protection of which will be ensured (within the framework of such activities, special attention should be paid to the determination of priorities in the state, as well as to the clarity and clarity of the wording, which do not allow multiple interpretations);

2) identification and forecasting of internal and external threats to the vital interests of the state (it is envisaged to determine the direction and objects of such threats, their intensity and impact on the stability of the political situation in the country, the development of critical infrastructure facilities);

3) development of a system of measures to counter threats (at this stage, scientifically based programs of actions of the state in a crisis situation, which have developed taking into account its political and economic capabilities, selection of the most vulnerable links that require immediate impact, priority areas of activity are being developed. This stage also provides creation of special bodies and organizations to ensure specific types of security, endowment of existing institutions with additional functions, determination of their powers and scope of tasks, legal, organizational, financial support for the activities of security institutions, development of control mechanisms, etc.);

4) neutralization of threats (presupposes the implementation of specific actions taking into account the conducted analysis and the developed program, the achievement of the set tasks. This stage should be accompanied by a systematic analysis of the sphere affected, which determines its effectiveness, as well as by adjusting the elements of the security mechanism in case of low effectiveness

of measures taken);

5) implementation of measures to restore the normal functioning of security facilities.

Therefore, the mechanism for ensuring the country's national security is an integral part of the international security system, which is based on certain principles, functions and tasks; involves the systematic use of a set of specific measures for the implementation of the assigned tasks, which must be used not separately, but comprehensively and promptly.

A structural and logical scheme is proposed, on the basis of which it is possible to develop a mechanism for ensuring international security. This scheme should include the following blocks:

– diagnosis and analytical assessment of the current state of the international security environment;

– constant monitoring of the criteria of the state of international security and their critical limits according to indicators (identification of the main challenges and threats to the national security of states; analysis and actualization of challenges and threats defined in the National Security Strategies in various countries of the world; identification of new potential challenges and threats to international security; preparation analytical reports and maps of international security risks);

– determination of the principles on which the formation of appropriate provision of international security should be based (normative-legal, institutional, scientific-methodical, organizational-economic, financial, information-analytical, technological, personnel, etc.);

– development of methodological support for assessing the level of national security of the countries of the world and international security;

– modelling and development of scenarios for ensuring the national security of the countries of the world using economic and mathematical tools;

– formation of strategic documents, programs and concepts of national security of the countries of the world, taking into account global geopolitical transformations;

– monitoring, control and evaluation of efficiency and effectiveness.

Prospects for further research consist in a comparative analysis of the international and domestic practice of developing and implementing state programs and mechanisms for ensuring national security in the international security system.

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# ENSURING ECONOMIC SECURITY FOR ESTONIA: INNOVATIVE USE OF DIGITAL TECH FOR UKRAINE

https://doi.org/10.5281/zenodo.10436687

**Abstract**
*The role of digital innovation in safeguarding economic interests, including cybersecurity, is significant. Estonia's exemplary success in digital transformation and some key initiatives such as e-Government and cybersecurity as well as Estonia's blueprint for streamlining government services and securing critical infrastructure can be useful for Ukraine. This paper aims to contribute to the discourse on ensuring economic security through the innovative use of digital technology. By adopting Estonia's digital best practices, enhancing cybersecurity measures, and embracing transformative technologies, Ukraine can navigate the complexities of the digital era and ensure a resilient and secure economic future.*

**Keywords:** *digitization, digital innovations, economic security, cyber security, information modernization*.

## Introduction

Today, digitization is an important process in the economies of the developed countries of the world. Estonia's business-friendly policies have earned it the top spot in the international tax competitiveness index and global innovative index (Global Innovative Index, 2022). The country has a corporate income tax rate of just 20 percent that only applies when profits are distributed, making it an attractive location for businesses looking to expand their operations. In the digital world, there is no need to limit a country's ambitions to its geographical borders. Estonia is often called a digital leader in Europe, as the country is known for its successful implementation of e-Government, digital identity, e-citizenship and other digital initiatives.

In this regard, Ukraine also belongs to developed countries, and the development and implementation of such an application as "Diia" is an example for many European countries (European Commission, 2021). In addition, the automation of calculations, use and creation of analytical programs and tools allows to make important decisions in the field of economy faster, which directly affects economic security and contributes to its strengthening in all aspects.

However, it is the experience of Estonia that is relevant for Ukraine as not only a direction that brings additional income to the budget, attracting talent to the business ecosystem and, in the case of Estonia, and promotes a country with a population of less than two million people extremely effectively, but also as a proof of the effectiveness of using digital tools and reforms in the field of digitization as a guarantee of increasing economic security.

## Materials and Methods

Through a comprehensive analysis of case studies and best practices of innovative use of digital tech in Estonia, the paper provides insights into effective strategies for overcoming challenges and building a sustainable framework for economic security in Ukraine.

**Results and Discussion**

The digitalization journey in Estonia has been a gradual and comprehensive process. It has been observed that digital identification and electronic government can be effectively implemented in the context of a digital economy. This, in turn, leads to an increase in the level of economic security of the country and provides more effective protection against cyber threats.

A step-by-step model outlining key milestones in Estonia's digital transformation is presented by Figure 6.7.

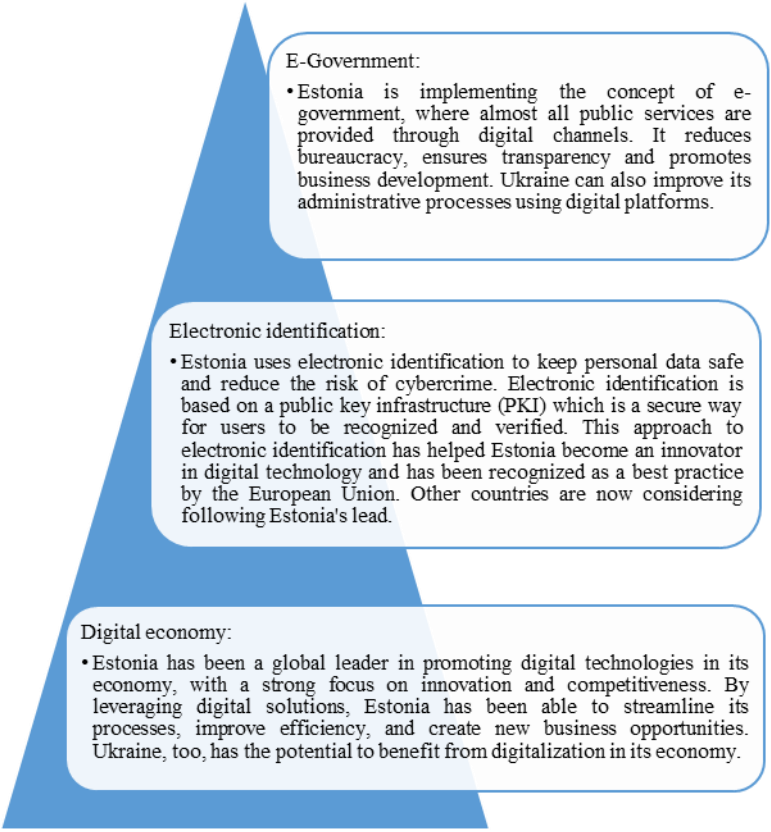


**Figure 6.7 A step-by-step model outlining key milestones in Estonia's digital transformation (Coursey, 2008; Ernsdorff, 2007)**

Estonia has been making remarkable strides towards becoming the world's first borderless state. The country is extending identity cards to millions of non-residents, allowing them to access various services and facilitating the remote establishment of businesses within its borders. This development is in line with the global shift towards globalization, where countries are expected to compete for global citizens' loyalty based on the quality and variety of services they provide.

During post-war recovery, Ukraine will have a unique opportunity to emerge as a highly efficient state, capable of attracting consumers worldwide who may not physically reside within its borders. The country has the potential to transform its entire economy by following Estonia's footsteps towards digital residency.

Individuals can become digital residents or e-residents by completing an online application, paying a fee of 100 euros, and submitting scanned copies of their identification documents. This innovative approach facilitates remote business operations, allowing businesses to operate within Estonia's borders without being physically present. Although electronic residency does not confer a passport, guaranteed entry rights, or tax exemptions in the country of residence, it does grant access to banking services for businesses and provides access to local administrative services.

According to Deloitte analysts (Welcome to the Power of With, 2022), Estonia's e-residency program could contribute a net direct financial income of 340 million euros by 2025. By following Estonia's digital residency model, Ukraine could unlock similar opportunities and become a hub for businesses and consumers worldwide, significantly reshaping the Ukrainian economy.

At the same time, the experience of Estonia shows that the first task is to create a culture, and then – a business model. This includes the need to develop digital education and digital skills, first of all (Levchenko, 2021; Yakovenko, 2022). With a vision to create a digitally literate society, Estonia embarked on a multifaceted journey that intertwines policy initiatives, infrastructure development, and educational reforms. The foundation of Estonia's digital education success lies in its robust information technology infrastructure. A comprehensive and widespread broadband network ensures seamless connectivity, enabling students and educators to access digital

resources and engage in online learning initiatives. The ubiquity of high-speed internet has facilitated the integration of digital tools in classrooms across the nation. Furthermore, Estonia has embraced e-learning platforms and digital tools to enhance the learning experience. Virtual learning environments, interactive content, and multimedia resources cater to diverse learning styles, fostering a dynamic and engaging educational atmosphere. The widespread adoption of these technologies has been instrumental in transcending geographical constraints and providing equitable access to quality education.

The Tiigrihüpe ("Leap of the Tiger") project was a major initiative undertaken by Estonia to modernize its education system and digital infrastructure. The project began in 1996 and was aimed at installing computers and the Internet in all Estonian schools. This move was meant to provide students with access to modern technology and digital resources, and to equip them with the necessary skills for the digital age.

In addition to this, the Estonian government had been preparing to provide all citizens with secure digital identification cards since 2001 (by that time, the digital literacy of the population had increased significantly) (Alvarez, 2009). These cards would serve as a secure means of identification for citizens when accessing various public and private services. They would also be used for electronic voting, banking, and other digital transactions. The implementation of these measures played a crucial role in Estonia's transformation into a digital society.

An uninterrupted and smooth customer experience is essential to building trust and promoting loyalty. Estonia, the frontrunner in digital governance, has made remarkable strides in this field. In 2000, Estonia introduced digital tax returns, which allowed taxpayers to file their returns online, eliminating the challenges of paperwork (Coursey, 2008). In 2005, the country went a step further by allowing citizens to vote online, making Estonia the first country to introduce online voting. Additionally, in 2008, Estonia made electronic medical cards available to all patients, allowing them to access their medical records easily and quickly.

The X-Road data exchange mechanism, which is the backbone of digital governance in Estonia, is a secure and efficient platform that

saves time for both citizens and civil servants. It allows for the exchange of data between organizations, without the need for multiple data entries or the duplication of data. This system has proved to be efficient, allowing citizens to access public services with ease.

The "one-time" policy is a critical aspect of the digital governance framework in Estonia (Estonia's Digital Agenda 2030). The policy stipulates that no piece of information should be entered into the system twice, thus eliminating the frustrations of inefficient bureaucratic procedures. This policy ensures that clients have a seamless experience, which enhances their trust and loyalty.

Estonia's achievements in digital governance have created a reliable and efficient system that ensures a smooth and hassle-free experience for citizens. These advancements have put Estonia at the forefront of digital governance, providing a blueprint for other countries to emulate.

The digital revolution has brought about significant changes in the way governments operate (Maslak, 2021). As part of this transformation, a comprehensive plan was put in place to establish secure management systems for government departments. The primary objective of this plan was to ensure that the sensitive data and information held by these departments are protected from cyber threats and other security risks.

To support this initiative, the state allocated a budget of 4 million dollars towards information technology. While this amount was insufficient to cover the costs of the large mainframe computers from IBM, which are typically purchased by governments, it was adequate to enable the adoption of new Internet protocols. These protocols were designed to enhance the security and reliability of the government's digital infrastructure, and to provide a more efficient means of managing and sharing information across departments.

With the adoption of these new protocols, the government was able to streamline its operations, reduce costs, and improve the quality of services provided to citizens. The new systems were also more user-friendly, making it easier for government employees to access and share critical information, which has resulted in more effective decision-making and better outcomes for the public. Overall, the adoption of these new technologies has had a significant

impact on the government's ability to operate efficiently and effectively in the digital age.

The Estonian Development Foundation held a competition in 2014 with the aim of implementing a plan to attract more foreign entrepreneurs, investors, scientists, and educators to the national economy. This initiative aimed to increase Estonia's global competitiveness and decrease its economic dependency on Russia, especially in light of the Russian Federation's full-scale invasion of Ukraine in 2022.

Initially, Enterprise Estonia, an entrepreneurship support agency within the Ministry of Economy, offered a grant of €24,000. However, this amount was subsequently increased to €300,000, allowing Estonia to draw in more foreign talent and diversify its economy.

Estonia's resolve to decrease its economic reliance on Russia is not new. Since reclaiming its independence in 1991, the nation has remained determined to safeguard itself from potential Russian aggression. The country's commitment to undertaking all administrative procedures via secure digital networks was reinforced by a series of Kremlin cyberattacks in 2007.

In 2007, Estonia experienced a series of cyberattacks that disrupted its online services and websites. These cyberattacks were in response to the relocation of a Soviet war memorial in Tallinn, the capital of Estonia. The cyberattacks were in the form of Distributed Denial of Service (DDoS), which flooded Estonian websites with traffic, making them unavailable to users. These attacks lasted for several weeks and caused significant economic damage, estimated at around 1% of Estonia's GDP.

In the aftermath of the cyberattacks, Estonia took several measures to enhance its cybersecurity and make its economy more resilient to future cyber threats. The country invested significantly in upgrading its cybersecurity infrastructure, including improving the capabilities of its Computer Emergency Response Team (CERT) and enhancing the overall cybersecurity posture of government networks and critical infrastructure. Estonia also established a national cybersecurity strategy that outlines its approach to cybersecurity and guides its efforts to protect critical infrastructure.

Additionally, the Estonian government undertook initiatives to

raise public awareness about cybersecurity through educational campaigns aimed at informing citizens about best practices for online safety and cybersecurity. These campaigns focused on topics such as password security, phishing, and malware protection. The government also established a cybersecurity training program for employees in the public and private sectors to improve their cybersecurity skills.

One of the most notable steps taken by Estonia was the establishment of the NATO Cooperative Cyber Defence Centre of Excellence (CCDCOE). Estonia hosted and advocated for the NATO CCDCOE, which was established in 2008 in Tallinn. The center focuses on research, training, and education in the field of cybersecurity, fostering international cooperation in addressing cyber threats. The establishment of the CCDCOE has helped Estonia to build a strong network of experts and partners in the field of cybersecurity, making it better prepared to deal with future cyber threats.

Categories of cybersecurity expenditure trends in Estonia are presented in Figure 6.8.

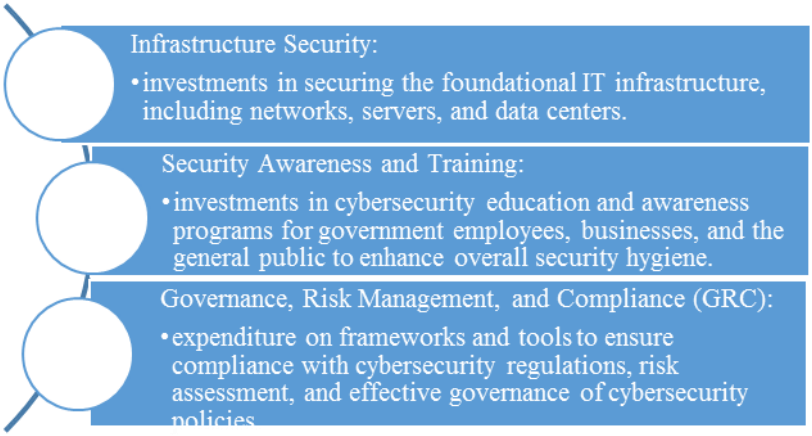


**Figure 6.8 Categories of cybersecurity expenditure trends in Estonia (Kemp, 2023)**

Overall, Estonia's response to the 2007 cyberattacks highlights the importance of investing in cybersecurity infrastructure, promoting public awareness, and fostering international cooperation

to address cyber threats. These measures have made Estonia a leader in cybersecurity and serve as a model for other countries looking to enhance their cybersecurity capabilities.

**Conclusions**

As we become more connected digitally, the idea of a nation-state defined by fixed territorial borders is gradually losing its significance. In the past, national governments were the primary actors in directing economic and ideological forces to achieve their goals. However, this era is over, and the global economy and the free flow of information have outgrown the power of national governments.

Estonia is a country that has recognized this new reality and embraced it. In addition, Estonian companies are becoming increasingly popular among international freelancers and online entrepreneurs. They use e-residency to simplify tax reporting and reduce administrative burdens, making it easier for them to focus on their core business activities. This is especially important for people who sell their services online, as they can now easily access the European market and expand their business.

Looking forward, Estonia is building a "government as a service" that will be available to other nations. By leveraging technology, Estonia aims to create a more efficient and effective government that is responsive to the needs of its people.

Estonia's blueprint for streamlining government services and securing critical infrastructure can be useful for Ukraine in order to become a highly efficient state during post-war recovery.

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# USING THE EXPERIENCE OF LEADING JAPAN CORPORATIONS IN THE CONDITIONS OF THE POST-CRISIS RECOVERY OF UKRAINE

https://doi.org/10.5281/zenodo.10436699

**Abstract**
*The possibility of using the most effective examples of world experience and practice of ensuring the sustainable development of economic systems in the conditions of post-crisis (post-war) challenges and threats on the way to the recovery of Ukraine as a whole and its economy in particular is considered. Taking into account the high pace of recovery of Japan's economy after the Second World War and its transformation into a highly developed country and the world's leading economy, the purpose of the study is to highlight the possibility of using the experience of Japan's leading corporations in the post-crisis recovery of Ukraine's economy. In order to achieve the specified goal, the work highlights the experience of leading corporations in Japan regarding: a) fundamental aspects of economic development on the way to overcoming the crisis and approaches to evaluating the results of business activity; b) strategic approaches to business development by the country's leading companies and the formation of an innovative type of its economy; c) approaches to business process reengineering and human resource management at advanced Japanese corporations*.

**Keywords:** *crisis, criteria performance, development strategy, human resources, innovation, recovery, reengineering*.

## Introduction

The economic advantages of Ukraine, which were justified both by its geographical location, taking into account its various natural-climatic and resource characteristics, and by existing industrial complexes, the agricultural sector and extensive infrastructure, were

largely devalued as a result of the annexation and occupation of part of its territory in 2014 and significant destruction as a result of aggression against it by russia from the beginning of 2022. The restoration of the country's economy in the post-war period and its further integration into the world economic system requires the reconstruction of both its resource and processing and labor potential, with the determination and further consolidation of the national economy's appropriate place and role in the international division of labor and the world economy.

On the way to the recovery of Ukraine as a state as a whole, and its economy in particular, it is very important to use the most effective examples of world experience and practice of ensuring the sustainable development of economic systems in the conditions of post-crisis (post-war) challenges and threats.

The relevance of the study of problems related to the definition and implementation of world experience and practice to ensure the post-crisis development of both the country as a whole and its individual regions and certain territorial entities, as well as business entities, in particular, in the context of the need for Ukraine to overcome the existing crisis phenomena, primarily related to the war and its consequences (economic, social, psycho-emotional, etc.) is determined by the fact that significant economic and political support to Ukraine from the partner countries, which was provided during the war, may significantly decrease (and in some cases even change) after its completion. At the same time, one of the most effective mechanisms for restoring the country's economy in the post-crisis period is the intensification of innovation and investment activity, the justification of which requires the use of the best practices of the world's leading companies in economic activity.

From the point of view of Joseph Schumpeter, one of the founders of the entrepreneurial approach to the development of economic relations, the basis of economic growth is the evolutionary process of constant introduction of innovations in the form of certain scientific and organizational combinations of production factors, supported by a motivated entrepreneurial spirit and advanced experience (Schumpeter, 2004).

Taking into account the fact that after the Second World War, Japan was destroyed, and modern Japan is a highly developed

country that accounts for a sixth of the world's industrial production, *the purpose of the study* is to highlight the best practices of Japan's leading corporations, which ensured the recovery and dynamic development of the country's economy in the conditions of its post-crisis state. At the same time, attention is focused specifically on Japanese advanced companies because in terms of gross domestic product and industrial production, Japan ranks third among the countries in the world after the United States and China. The country ranks first in the production of ships, cars, tractors, metalworking equipment, consumer electronics, and robots. The main sectors of the country's economy are: ferrous and non-ferrous metallurgy, power electrical equipment, shipbuilding and automotive industries, electronic and electro-communication equipment, instrument making, petrochemical, food, textile and light industries (Shved, 2022).

**Materials and Methods**

Of course, an outstanding role in the formation of advanced approaches to the revival of the Japanese economy after World War II belongs to the American scientist William Edwards Deming, who first visited the country in 1946 and proposed the practical use of his scientific developments in the field of management, including (Stratton Brad, 2012):

**a)** the W. Shewhart cycle he modified, which the whole world now calls the Shewhart-Deming cycle [PDSA or PDCA];

**b)** proposed for practical use of the theory of deep knowledge developed by him (understanding of the system; knowledge of the theory of variability; elements of the theory of knowledge; knowledge in the field of psychology) and methods of statistical quality control;

**c)** concentrating efforts on the widespread use of team interaction and on the internal motivation of employees as the basis for their responsible and stable behavior;

**d)** the use of Deming's 14 key principles, which were widely used both in Japan and in other countries under the name "lean manufacturing".

This study was based on both information obtained from open literature sources (Schonberger, 1988), and information received

from specialists from the NEDO research center ("New Energy and Industrial Technology Development Organization" in Kawasaki), which is developing strategies for the metallurgical industry concern "Kawasaki seitetsu", as well as specialists from the corporations "Toyota", "Honda motors" and "Sony Electronics" when visiting.

The evaluating factor for the activity of any business structure in Japan is the ratio of the results achieved to the costs incurred as 3 criteria, in particular:

- *productivity*, which takes into account the labor consumed – "it is necessary to do something properly";
- *effectiveness*, which takes into account the degree of achievement of the target function – "you only need to do what should be done";
- *efficiency*, which takes into account all functioning labor – "doing only what should be done must be done only as it should be done."

In an effort to speed up the elimination of crisis phenomena, take the place of one of the leaders of the world economy and create conditions for maintaining their achieved positions, leading Japanese corporations rely on the widespread use of such factors as:

- psychological (including behavioral) traditions of the population, based on philosophical, religious and moral values, including: strict discipline, exceptional hard work, amazing accuracy, perseverance, patience, minimal needs, a strong sense of collectivism, devotion to the employer, submission and respect to elders, understanding and recognition of one's place in business, desire to learn and improve, etc.;
- minimizing inventories of material and technical resources by integrating inventory management systems based on our own approaches to quality management and the implementation of automated production management systems;
- widespread use of comprehensive quality control systems for both the resources used and the work performed, as well as the results of activity and its consequences, by including responsibility for quality in every job description or job description of a production worker;
- widespread use of comprehensive systems of preventive maintenance of equipment, eliminating its breakdowns and failures

during operation;

- extensive use in practical activities of advanced methods of studying both the total needs of consumers, the capabilities of our own production to improve the consumer qualities of operating results, conditions and sales channels, and the total capabilities of competitors.

At the same time, it is necessary to take into account that government authorities must take on a special role, making increased efforts aimed at ensuring conditions for filling the foreign market with Japanese goods (better quality and cheaper than competitors), while simultaneously protecting their own market from external competition under WTO rules.

Thus, we can conclude that in order to revive the Ukrainian economy in the post-war period and restore its industrial, agricultural and logistics potential, it is necessary to use clearly defined and transparent assessment criteria for the activities of business entities and socially significant sectors of the economy, as well as markers of development dynamics for both individual business structures and their associations, as well as for government bodies and local self-government.

**Results and Discussion**

The development strategy of the most effective Japanese companies (for example, Toyota, Honda motors, Sony Electronics) is based on both improving consumer qualities and reducing prices for goods that are analogues of goods produced by competitors. The following examples characterize the options for approaches to overcoming crisis conditions by Japanese companies:

- the owner of a network of auto repair shops, Mr. Toyoda, having concentrated on improving the lubrication and interior heating systems in German cars supplied to the USA and not taking into account the climatic conditions of this country, developed the business to the largest car manufacturer in the Toyota concern;
- the automobile concern “Honda Motors” began by installing small, improved engines on bicycles, which came in large quantities from army warehouses, gradually moving on to producing cars with environmentally friendly engines of its own design, leading in the

segment of sports cars, as well as electric vehicles and scooters;

- a small company for the repair of consumer electronics and the production of pressure cookers called "Sony" (from the Latin word small) made a rapid breakthrough in business development by hiring engineer Ibuka Tada, who proposed to improve the captured tape recorder by combining it with radio receivers in which he provided for switching to FM stations broadcasting in the USA.

In addition, special attention of the strategic management of large corporations in Japan is focused on expanding and diversifying the range of activities and areas of business development. For example, the company "Kawasaki seitetsu", which is one of the 5 largest metallurgical concerns in Japan, declares that one of the most important directions of its business development strategy is the transition from the metallurgical sector in business to a diversified business by bringing the share of steel production in the overall structure of business volume to 60%. At the same time, organizing the production of electronics goods, which should account for up to 15% of total income, the production of chemical products and new types of polymer materials up to 13% and engineering work up to 12%. At the same time, the Sony Electronics holding company sets itself a strategic goal in the form of creating the widest possible range of production of electrical appliances that a person may need in life under the slogan "the entire living room in every family is only from Sony."

Thus, the main attention in the process of post-crisis recovery of the economy should be given to the creation of an *innovative type of economy* in post-war Ukraine – an economy based on:

**a)** continuous flow of implementation of improvements in consumer qualities and price characteristics of goods and services;

**b)** constant improvement of technical-technological and economic-management processes;

**c)** concentration of attention and resources on expansion of spheres of activity and creation of new types of high-tech products with high added value;

**d)** limiting the supply of unprocessed raw materials to world markets by expanding target market segments in the world economy to ensure the export of domestic products and services, etc.

At the same time, it is necessary to take into account the fact that

the complexity of creating an innovative economy in Ukraine in the post-crisis period lies, in particular, in the fact that there are:

**a)** limited resources for overcoming the destruction and restoration of regional infrastructure and business assets;

**b)** demographic losses in the country;

**c)** the presence of an unfavorable investment climate in the country for business development;

**d)** aggravation in the post-crisis period of competition both on the international arena within the global economy as a whole, and in certain industries and types of activity, in particular, etc.

However, without a clear definition of a strategic vision of ways and directions for the recovery of the country as a whole and its economy, in particular, a positive solution to the problems accumulated during the war is impossible. Therefore, it would be appropriate to consider the practical experience of approaches to the formation of a strategy for existence and business development, which has found application in advanced companies. Many dynamically developing transnational corporate structures in Japan and other developed countries, as the basis for building a business strategy and management system, use the model proposed by M. Hammer and J. Champi, called the balanced scorecard, which is based on its four main components, (projections), namely (Hammer & Champy, 1993):

**a)** finance (cash flows);

**b)** marketing (supply of resources and marketing of results);

**c)** internal business processes (technology and organization);

**d)** personnel (training and professional development).

Thus, the formation of a general (corporate-wide) strategy is carried out by integrating all functional business strategies with a focus on the following areas:

- "*clients*" – it provides for the development of activities aimed at meeting the needs of both consumers of the results and consequences of business activities, and suppliers of resources needed by the business, as well as the search for optimal ways to interact with related companies, manufacturers of similar products, and competitors, etc.;
- "*processes*" – prospects for systemic and comprehensive optimization of all business processes and related resources

(machinery and technology, equipment and accessories, organization and management, resources used, etc.), in order to improve the consumer properties of manufactured products (provided services), improving their quality characteristics, reducing resource consumption and production costs;

- "*people*" – coordination of work on strategy formation in the process of transforming "human resources" into "human capital" capable of realizing the company's goals and strategy through constant training, assessment and development of personnel, their involvement in the business by motivating their behavior and stimulation to achieve the necessary results;
- "*finance*" – development and coordination of all functional strategies in terms of balancing financial flows, using own and borrowed funds, minimizing costs and increasing income, using profits.

In our opinion, special attention when forming a strategy for overcoming the crisis and restoring economic potential, taking into account the emerging demographic situation under the influence of the consequences of the war, would need to be focused on human resources. In this case, in the strategic direction "people", using the experience of Japanese enterprises, certainly taking into account the national characteristics and cultural traditions of our country, it would be possible to focus on the fact that when forming:

**a)** compensation policy (organization of remuneration) take into account both the qualifications of the employee, his work experience and the employee's work merits, test assessment indicators of personal characteristics and authority among colleagues, subordinates and managers (personal price list "who"), and the nature of the work performed by the employee and their results, the position of the workplace in the hierarchy of the enterprise's subordination structure, the number of related professions mastered and the quality of their implementation, the absence of violations of technological, production and labor discipline (price list of work performed "what");

**b)** personnel policy to provide opportunities, conditions and tools for implementing the personnel development system as a whole (for example, the use of the Toyota concern's labor knowledge rotation system) and individual career programs, in particular based on a

systematic and objective assessment and taking into account the individual merits of each;

**c)** internal and external social policies of businesses should provide for both systems of broad support and social protection for employees and members of their families, including support after the end of their working career, and certain aspects of social support for the population in the places where business structures operate.

**Conclusions**

Based on the foregoing, it is possible to draw certain conclusions about the advisability of using the experience (critically analyzing and assessing the possible results and consequences of its implementation in real-life conditions) of the most successful business structures, both in terms of the positions they have achieved in world markets, and in terms of their influence on the revival and dynamic development of the regions of their operation and society as a whole. From this perspective, of particular interest is the study and practical use of the experience of advanced Japanese corporations, which have achieved good results in practice, in the conditions of post-crisis economic recovery.

Among the factors that deserve attention, in our opinion, we can highlight, in particular, the following:

- the basis for the effective work of leading Japanese companies is their constant desire to meet the needs of consumers through constant improvement of the quality properties and consumer characteristics of their products while striving to reduce the price and improve the conditions for the sale and promotion of their goods on the market;
- carrying out painstaking, balanced and targeted work on the formation of a unifying strategy for all functional and product (regional) divisions of corporations in the areas of clients – processes – people – finance. At the same time, the implementation of a certain strategy is carried out by searching for ways to improve consumer characteristics and quality properties of manufactured products (services provided), improving technology and technical means of production, minimizing inventories, comprehensive quality control, ensuring uninterrupted operation of equipment and effective use of labor potential;

- special attention to the formation of labor potential and the effective use of human resources by leading Japanese companies, including:

**a)** creation of conditions that exclude violations of performance, technological and labor discipline;

**b)** strict and clear formalization of all industrial relations (the peculiarity is that the description of the functions and responsibilities for a position (profession) working at a specific workplace is replaced by a statement of them for a specific employee working in a position (profession) at a given workplace);

**c)** a combination of unquestioning subordination and subordination in industrial relations with providing opportunities for creativity and initiative (with encouragement and decent remuneration) exclusively in free time from work;

**d)** conducting a systematic, scrupulous and objective assessment of both the employee's characteristics and the results of his work, as well as his opportunities and prospects for professional growth, a detailed accounting of all the employees' achievements;

**e)** comprehensive support for employees' desires to improve their skills, master related professions, rotate labor knowledge, and professional development;

**f)** concern for changing the employee's attitude towards the business from job satisfaction to loyalty to the company and involvement in the business, dedication to the interests of the business.

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## THEORETICAL AND METHODICAL BASES OF ENTERPRISE'S INTERNATIONAL ACTIVITY DEVELOPMENT

https://doi.org/10.5281/zenodo.10436707

**Abstract**
*The article is devoted to research the theoretical and methodical bases of the development of enterprise's international activity. It is established that international economic activity is an activity based on the relationship between a national producer of goods and services and a foreign partner and takes place in accordance with current legislation. Export and import are the most typical operations of international*

*economic activities. As a result of the theoretical study, it is concluded that international activity provides enterprises with a desire to have development a number of advantages, because entering a new market will allow them to increase their profitability due to the satisfaction of a large number of consumers, under condition of obtaining by enterprises the competitive positions in the market. International activity is based on simple principles, namely the international division of labour, specialization and cooperation. In the article it is emphasized, that development of the international activity of the enterprise can take place, first of all, if the enterprise has positive financial and economic results of its activities in the domestic market and under the conditions when the enterprise plans, develops and implements development strategies. It is shown that in order to ensure and evaluate the development of the international activity of enterprises, it is possible to use a certain toolkit and choose a number of indicators by which its success will be analyzed. For such assessment, the enterprise can use indicators that have already been used in the practice of the enterprise, or indicators that have not been used before. To make a choice of indicators is usually quite a difficult task for the enterprise, and in order to make the right choice, it is necessary to select the criteria by which the indicators will be selected; select qualitative information sources; to establish directions of analysis, namely to justify the selection and assignment of indicators, to determine the information they should give; determine the factors influencing the development of the enterprise's international activities.*

**Keywords:** *international activity of the enterprise, international operations, development toolkit, factors of international activity, strategic planning toolkit, methods of determining efficiency, system of indicators.*

The international activity of the enterprise is the next stage of its development after gaining the competitive positions in the domestic market and ensuring the maximum possible demand within its operating environment. Work in the direction of international activity is quite important, because for the development of enterprises they expand their activities and enter new markets. It makes it possible to supply their products by increasing own sales volumes and maximizing profits.

The international activity of economic entities of Ukraine with

foreign economic entities, which is based on mutually beneficial relations, is performed both on the territory of the country and outside its borders, which are determined by the laws of Ukraine on foreign economic activity. Subjects of foreign economic activity are (Hrebelnyk, 2016):

– natural persons, which are legally competent and live in Ukraine;
– legal entities, which are registered and located in Ukraine;
– association of legal entities, individuals, individuals and legal entities, that are not legal entities, but are located in the territory of Ukraine and do not have a ban on economic activity;
– structural units of foreign economic entities, that are not legal entities, but are located on the territory of Ukraine;
– joint ventures, the participants of which are foreign and Ukrainian economic entities, registered in Ukraine and having a permanent location in the country;
– state clients from the defence state order;
– other business entities, provided by the legislation of Ukraine.

The sphere of international activity is scientific and technical and international production cooperation, export-import operations and entry of enterprises to international markets.

There are principles that guide economic entities in the implementation of international activities (Hrebelnyk, 2016; Hrebelnyk, 2019): the principle of freedom of international entrepreneurship, the principle of non-discrimination and legal equality, the principle of the rule of law, the principle of protecting the interests of international entities, the principle of exchange equivalence.

Therefore, transnationalization, globalization, international economic integration, international division of labour are gaining intensive development in the modern world, and as a result, the international activity of a single state is one of the most important conditions for its economic development.

International activity actively contributes to the development of spheres of activity, the goods and services of which are exported, increasing the export potential of the state. Solving the problems of outdated equipment and technologies, lack of energy resources, lack of household goods falls on international activity.

Enterprises of each country have certain advantages compared to foreign ones, and accordingly, each participant in the world market tries to use this difference in full.

Successful international activity occurs when export exceeds imports. If the opposite situation occurs, then it indicates a low ability of the population and the country as a whole to create competitive goods and services, which is a consequence of the unstable economic, political and social situation in the state, and such a state is defined as import dependent. Of course, the dynamics of development in different states are different, so it is the import-export ratio should be closely monitored (Hrebelnyk, 2019).

International activity has several aspects, namely regional, national and global. They are revealed in the power of development and growth of the state as a whole and are a way of its entry into the world economic system, i.e. international division of labour and international cooperation in response to the trend of strengthening globalization processes.

International activity also includes the concept of international economic ties. The set of methods, forms and means of international economic relations between countries is called international economic relations. The movement of all types of resources between different states and their economic subjects forms a system of economic relations that characterize international economic relations as an economic category. These relationships include production, trade, investment and financial activities (Hrebelnyk, 2016). In other words, they cover all areas of the economic life of the state.

World demand is transferred to the country's domestic market precisely through the mechanisms of international economic relations. As a result, it contributes to the development of productive forces, and, accordingly, agriculture, industry, trade and the financial sector of the country.

Forms and types of communication form the classification of international economic relations. Such connections are divided by the direction of the material flow – into import and export, and by structure – into financial, foreign trade, investment and production.

Forms of international economic relations are: trade, engineering, barter, leasing, tourism, franchising, information exchange, consulting, etc.

The only effective economic and political system that protects the interests of the state is the place of orientation of the emergence and development of international economic relations, that is, the influence of regulators of various kinds forms and implements international economic relations (Bodnarchuk, 2019).

As an economic category, international economic activity provides insight into the functions of production structures for the implementation of foreign economic activity in companies, enterprises, organizations, firms, etc.

According to the Law of Ukraine "On Foreign Economic Activity", it is a type of activity of Ukrainian and foreign economic entities, which is built on mutual relations that take place both in Ukraine and abroad.

It should be noted that the focus of international activities should look like as:

– promoting the positive dynamics of the growth of the national economies of the states, with the help of realizing the advantages that become possible due to the international division of labour and the increase in the level of efficiency of the national economies;

– there is a positive impact on economic development and its pace;

– making comparisons between the difference of international and domestic production, reducing production costs.

The focus of international activity has the same form in all countries of the world, however changes arising in response to global market changes are always possible.

The functions of international activity are:

– organization of international monetary circulation of funds;

– determination and forecasting of the consumer value of goods and services on the international market in terms of production ensured by the international division of labour;

– performing the exchange processes of labour results and natural resources in material and value forms.

The foreign economic complex of the region, the country is the material basis of international activity and consists of organizations, enterprises, associations, sub-sectors, industries that perform import and export operations, namely, permanently create a production base for exporting goods and services, or use import resources to provide

production, or perform other types and forms of international activity (Kozak et al., 2020).

For the successful development of the international activities of enterprises and the country as a whole, it is very important that the combinations of international economic and production activities form an organic, integrally unified successfully functioning system. For Ukraine, today, successful development factors are:

– providing economic entities with the greatest possible independence in the implementation and performing the international economic activities, reducing state control over the course of business;

– strengthening and increasing the potential of export operations of economic entities;

– increasing the competitiveness of the production potential of all economic subjects and the country as a whole on international markets.

Achieving and using the advantages of the international division of labour and international business relations are the purposes of the international activity of any enterprise that operates on the international market, because it provides the enterprise with economic benefits that increase the competitiveness of the organization not only in the conditions of economic activity on the international market, but also on the internal.

The mechanism for starting international activities is not complicated and is clearly and transparently regulated by law in almost all countries that perform the specified operations (Hrebelnyk, 2016).

In order to enter or start operations in a new international market, the enterprise must achieve significant success at the state level and occupy either advanced or leading positions in its field.

As a rule, the organization of international activities has certain advantages depending on the market conditions of the country or group of countries on which the company's activities can be focused. Often, the provision of services or sales activities in another market can cost much more than in the domestic market, because the price is determined by demand.

Also, European countries, for example, concentrate production in Asian countries, where the payment for labour is much lower. It in

turn leads to cost reduction.

Before the beginning of the 21st century, 80% of production was concentrated in European countries, and in 2021 – only 15 (Bodnarchuk, 2019).

Searching the partners and establishing the relations with them is important for an enterprise when conducting international activities. International partners are able to supplement the enterprise with factors of production and maximize its international potential.

It is also worth always keeping in mind international investors, in particular business figures or companies that have achieved significant successes and are searching for undeveloped areas for investment.

The main motives for the development of international relations and international activities should include:

– purchase of necessary goods, components, various resources, technologies, equipment, machines, equipment to satisfy own production or demand, if the final product is imported or exported;

– increasing the receipts of profits by performing activities outside own country, finding new consumers and increasing opportunities for increasing sales;

– participate in the international division of labour, international specialization and production cooperation for the development of own business by gaining access to new technologies of another country and new knowledge;

– take measures to attract foreign investors to ensure the development of the enterprise, increase the efficiency of its activities, strengthen competitive positions on international markets, export potential and modernize production;

– search for new ideas, engineering, business reorganizations to ensure production efficiency, creation of a unique competitive product in price and quality, which will compete with international samples and to achieve the most acceptable sale price at the lowest cost.

International operations are structural units of international activity.

The preparation, implementation and signing any international contract by foreign counterparties (investment, trade or other that has an economic meaning and character) are a set of actions that form the

concept of international operations.

The main directions of performing the international operations are presented in Table 6.3.

*Table 6.3*

**Main directions of performing the international operations**

| Type of operation | Examples of operations |
|---|---|
| International investments | 1. Creation of joint ventures with foreign capital.<br>2. Investments within free economic zones. |
| International trade | 1. Export-import operations.<br>2. Re-export and re-import.<br>3. Trade operations of the rivalry type.<br>4. Counter trade operations. |
| International technology transfer | 1. Signing franchise agreements.<br>2. Signing license agreements.<br>3. Signing leasing agreements.<br>4. Reengineering and engineering.<br>5. Consulting operations. |

*Source: compiled on the base of (Hrebelnyk, 2016; Hrebelnyk, 2019; Bodnarchuk, 2019)*

It should be noted that in the definition of the concept of "international activity", its main components are: international production, scientific and technical cooperation, various forms of international cooperation in the production sphere, export and import of products, the company's entry into the international new regional market, or countries – all specified concepts define the sphere of financial and economic activity of companies that perform the international activities.

International activity is a component of the general activity of the enterprise, these concepts are connected with each other and there is a direct dependence between them.

However, international activity has certain features and specifics: it performs on the international market and includes international cooperation with foreign companies.

It is worth to note that in order to ensure the development of international activities of enterprises, it is necessary to take into account the peculiarities of different countries, since the population of countries differs in preferences, religious characteristics, needs, etc., and the language factor is also important for establishing contacts with customers and conducting effective marketing

activities.

To evaluate international activities, the company can use indicators that have already been used in its practice, or those that have not been used before. Choosing indicators is actually quite a difficult task for an enterprise. Therefore, to make the right choice, it is necessary:

– choose criteria for selecting indicators;
– choose quality sources of information;
– choose directions of analysis, namely to justify the selection and assignment of indicators and to establish, what information they should provide;
– determine the factors influencing the company's international activities.

The method of determining the system of indicators that characterize the development of the international activity of the enterprise helps in solving specific management problems (Bodnarchuk, 2018).

In accordance with the specified tasks, before choosing key indicators, the company needs to analyze the factors influencing on international activity, decide on the selection criteria, and justify the qualitative assessments and calculations of the studied economic processes and phenomena (Rumiantsev & Rumiantseva, 2019). The criteria for the selection of indicators are established based on their characteristics, because the indicators provide an assessment of the retrospective and prospective state of the development of the international activity of the enterprise. Indicators can be relative and absolute, characterize the investigated phenomenon or process quantitatively and qualitatively, reflect the state of some phenomenon and its dynamics. The criteria for the indicators are chosen according to the situational approach in response to the specifics of the enterprise's activities, the markets where it operates and its branch. Enterprises also use indicator systems that characterize productivity and economic efficiency (Rumiantsev & Rumiantseva, 2019; Moskalenko, 2016).

Retrospective and prospective indicators analyze processes and phenomena that occurred in the past and would occur in the future, respectively.

The indicated indicators demonstrate the perspective of the

dynamics of economic processes under investigation.

Absolute and relative indicators reflect the available information in different ways.

Relative indicators characterize international activity indirectly and are determined using ratios and have the form of coefficients, percentages, while absolute indicators directly reflect the development of the international activity of the enterprise.

They reflect the conditions of development of international activity and indicators of economic efficiency through the ratio of the result to the resources spent, and the quantitative results of the activity are characterized by profitability indicators. Accordingly, each company selects criteria that will make it possible to correctly choose indicators for evaluating the development of international activity.

The choice of indicators should be made only after the company received and formed the appropriate information support and evaluated the opportunities provided by it. Justification of the directions of analysis when developing of international activities is also an important factor in the selection of indicators. The analysis of the factors of success of the implemented measures of the development of international activity makes it possible to determine the indicators, necessary during the implementation of development monitoring.

The following general groups of factors influence the results of the international activity of the enterprise:

– financial and economic conditions of the enterprise;
– experience in international operations;
– state regulation in the field of international relations;
– the potential of the enterprise and its intellectual component;
– features and availability of sales channels for goods and services;
– level of technical and technological support;
– active activity on the stock markets and evaluation by international auditors.

To ensure the implementation of the proposed development measures, mathematical research methods using factor analysis are often used (Shapoval & Zaiets; Chaikovska, 2020).

Correlation-regression models are developed to assess the

strength and direction of influence of individual factors, which creates a basis for forecasting and planning various scenarios of the development of international activity in a certain field. In addition, the analysis of factors can be carried out by various methods using: expert surveys; regressions; correlations; clustering; factor analysis.

One of the most effective tools of strategic management and analysis is scenario analysis. During its development and introduction of forecasts, it is permanently changed and regulated in response to the emergence of new branches of the economy; enterprises; emergence of new technologies; changes in consumer demand due to changes in income; increase or decrease in the number of employees and needs; changes in the international environment (Brovkova, 2017).

It is possible to distinguish the main scenarios of the development of the enterprise:

– target or realistic scenario that is the result of a critical assessment;

– inertial, or pessimistic, which is the result of taking into account external and internal factors that threaten the activity or do not change it;

– modernization or optimistic development scenario, which is based on the most optimistic external and internal indicators and indicates the company's development and effective using of its capabilities.

Development of scenarios is carried out using the following methods: brainstorming method, scanning method, Delphi method, Saaty method, cross-influence method, script writing method, morphological analysis method, diagram system method, link method, Bayes model method (Brovkova, 2017).

The international activity of enterprises must be subject to mandatory, legally defined models of legal relations.

Compliance with the regulations for conducting international operations, the order of settlements, the need to obtain export and import licenses for the international activities of the enterprise is regulated by the method of authoritative regulations.

On Figure 6.9 is presented a set of tools that can be used by an enterprise at each stage of the strategic planning process.

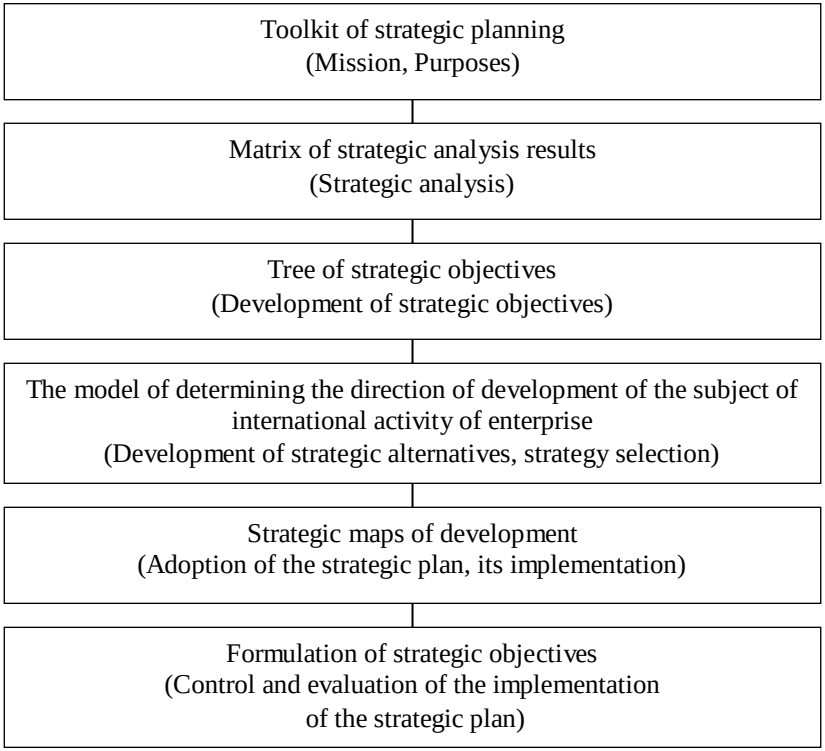


**Figure 6.9 Set of tools that can be used by the enterprise at each stage of international activity's strategic planning process**

*Source: developed by the authors on the base of (Bodnarchuk, 2018; Brovkova, 2017)*

The international activity of enterprises directly affects the country's economy; therefore the state controls this activity.

There are recommendations and restrictions established by the state for the possibilities of international activities.

The legislation ensures the protection of companies in the international arena and creates conditions for the receipt of funds to the budget (Tiurina & Karvatska, 2019).

The state regulates the behaviour and relations of subjects of international activity through existing models of legal relations. All methods of state regulation work simultaneously and have a coercive order. The state exerts its influence on international activity with the help of the following regulatory instruments: political and

commercial, in particular trade non-tariff restrictions and duties, political and currency.

Different types of goods that are exported or imported are objects of different duties. The state also uses non-tariff and tariff methods of regulating international economic relations.

In the international arena, there are only two key methods of export-import transactions. Direct export/import means that the produced goods and services are delivered to the final foreign consumers by own means, or the company buys the corresponding goods. Indirect export/import requires the establishment of relations with trade intermediaries and other partners for the sale or purchase of products.

Large companies due to their strong economic positions, large volumes of production, concentration of production capacities and centralization of capital are able to carry out direct exports. As a rule, TNCs create their own branches or even buy foreign companies for this purpose. It is advisable to use the direct international method:

– in the case of purchases or sales in the long-term aspect, contracts of industrial raw materials;
– in case of export of expensive and bulky equipment;
– in the case of export of conventional equipment with the help of foreign branches;
– in the case of food products purchased from farmers;
– in case of state purchase and sale of land.

Establishing direct connections with the foreign environment has certain advantages: significantly better possession of information about and market conditions, quick and flexible adaptation of production activities to the needs of local consumers, as well as establishing closer ties with counterparties. Despite such advantages, indirect export and import are also actively used in the implementation of international activities.

Almost half of all products in the world are part of the international trade precisely thanks to the help of trade intermediaries in promoting products in foreign markets. The indirect method is used in cases:

– implementation of standard production equipment;
– sale of goods and consumer products;
– implementation of the strategy of promotion of new types of

goods and services;

– lack of opportunities to organize a sales network with own forces;

– access to hard-to-reach and poorly researched international markets;

– market monopolization of large trading and intermediary companies;

– sale of secondary goods.

Rich experience of activity in the market, own service network, knowledge of potential consumers and the market as a whole, its conditions are provided by foreign partners, which increases the attractiveness of the indirect method for using by medium and small companies due to the advantages provided.

In the Table 6.4 methods that ensure the determination of the effectiveness of the international activities of companies are given.

There is a large number of different approaches to determine the efficiency of the international activity of the enterprise, most of which are based on the criterion of revenue maximization. These methods are based on the determination of the production function, the factors that stimulate income are analyzed, and they also make it possible to calculate the maximum possible income. However, in today's global competitive environment, it is not advisable to use only these methods.

The relationship between the size of the enterprise, human capital, and the availability of finance encourage using the methods that are used in companies with a large share of innovative activity (Chaikovska, 2020).

Well-known scientists Thomas Farole and Guilherme Reis developed tools for diagnosing the competitiveness of trade. This toolkit includes a number of indicators of the effectiveness of trading activity, which must be analyzed, in particular, diversification, technological difficulty, etc. However, its drawback is insufficient consideration of the production aspect in favour of only the trade aspect.

Significant interest is the method of the International Institute of Management Development, built on the system of evaluating the effectiveness of international entrepreneurship, which is characterized by the following indicators: the effectiveness and

reliability of the management team; productivity; development of corporate values; the level of investment risks, financial services, personnel qualification and the organization of sales activities.

*Table 6.4*

**Methodical support of determining the effectiveness of the international activity of the enterprise**

| Method name | Tasks |
|---|---|
| Method of coefficients | Calculation of indicators by components: profitability, general financial condition, efficiency of sales organization, using the fixed assets, labour and material resources, efficiency of product promotion and sales of goods |
| Method of standardization | Formation of the matrix system based on calculations of indicators and their standardized values within the activity of the enterprise |
| Criteria method: minimum, average, maximum, reference value for various indicators | Determining and forming a set of features, destimulants and stimulants to create reference value for key figures |
| The Euclidean distance method, the method of comparisons, the process of comparing the Euclidean distance with the range of standard variation | Performing the calculations in the dynamics of integral indicators for evaluating the company's activity over a certain period (several years) |
| Simple ranking method | Interpretation of the defined integral indicator |

*Source: compiled on the base of (Kozak et al., 2020; Shapoval & Zaiets)*

In conclusion, we note that international activity provides enterprises, with a desire to develop itself, a number of advantages, because entering a new market will allow them to increase their profitability due to the satisfaction of a large number of consumers under conditions they gain competitive positions in the market.

The development of the international activity of the enterprise can take place, first of all, if the enterprise has positive financial and economic results of its activities in the domestic market and under

the conditions when the enterprise plans, develops and implements development strategies.

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# CONCLUSION

Ensuring sustainable development and security of economic systems in the current environment is one of the most important issues for countries around the world. The essence of sustainable development is to maximize economic, social and environmental benefits from the development of international economic relations and each system of the national economy of a country, provided that the reproduction of natural resources is ensured in the long term. The economic significance of sustainable development means not only the growth of the national economy and the increase in per capita income, but also the improvement of all elements of social security and environmental protection. Sustainable development should be accompanied by the necessary structural changes in the economic, social and environmental spheres.

The security of economic systems is a global problem, as it cannot be solved by the efforts of individual states alone, but requires the cooperation of the international community, regardless of the level of socio-economic development. Ensuring the security of economic systems involves a set of state measures aimed at preventing current threats and challenges related to military aggression, food supply, financial crises, pandemics, unemployment and significant migration flows of refugees. Russia's full-scale invasion of Ukraine has strengthened Ukraine's role in ensuring energy, food, financial and social security. The transformation of socio-economic processes in the context of European integration and globalization has increased the need to develop and implement strategies to ensure international security.

The results of the authors' research in the scientific monograph are devoted to solving the problems of research and economic assessment of the impact of current challenges and threats on the functioning of economic systems, the use of marketing and logistics tools in managing the development of economic systems, entrepreneurship, ensuring food, energy and environmental security, the formation of innovative models and strategies for sustainable development of economic systems, as well as the implementation of world experience and practice of ensuring sustainable development and security of economic systems.

The results of the research presented in the scientific monograph reflect the theoretical, methodological and practical aspects of ensuring sustainable development and security of economic systems through the formation of mechanisms for state protection of national economic interests and public-private partnerships, the use of innovative outsourcing and digital technologies, environmental protection, human resource management and territorial development.

The study showed that, if resilience is achieved, withstanding the destructive impact of the external environment and modern challenges contributes to the economic security of the company. The ability to ensure and achieve positive economic results in the dynamics contributes to the sustainability and economic security of the company. The authors prove this on the example of functioning of insurance companies in Slovakia. The author's generalizations show that the use of a balanced policy of human resource management and investment in human capital contributes to the efficiency of logistics processes and sustainable development of companies. The need to form and implement an innovative outsourcing strategy contributes to the intensification of innovative development as a tool for ensuring sustainable development and achieving competitive advantages. The state plays a significant role in ensuring sustainable development and security of economic systems. The authors propose to use the mechanisms of public-private partnership in solving urgent problems and implementing relevant programmes for the development of the country's logistics infrastructure.

The use of innovative technologies in the context of ensuring the economic security of an industrial enterprise is considered on the example of the implementation of blockchain technology in the logistics processes. Attention is paid to the use of artificial intelligence in entrepreneurship, and a sectoral approach is proposed, taking into account the concept of creativity. The problems considered of ensuring a global competitive environment in the world retail trade caused by the intensification of e-commerce, the introduction of omnichannel by leading retailers using modern information-communication technologies and innovative solutions. The main directions of further development of Internet business in the context of strengthening European integration processes are

substantiated. Using the example of digital transformation, introduction of e-government and strengthening of cybersecurity in Estonia, the author considers a perspective plan for optimizing public services and protecting critical infrastructure for Ukraine.

The results of the research show that there is an urgent need to consider the issues of ensuring sustainable development and security of certain sectors of the national economy. Thus, the authors propose the formation of a marketing competitive strategy for healthcare institutions, directions for modernizing the mechanism of state protection of national economic interests of agricultural producers in Ukraine and sustainable agricultural development in Romania when implementing technologies by farms, introduction of sustainable tourism practices in Croatia and management of tourist destinations.

In the scientific monograph, the authors emphasize the need to study global environmental security. It is determined that the mechanisms of ensuring can be the ability to withstand threats to life, health, well-being, fundamental human rights, livelihoods and social order.

The authors identify the problems of ensuring sustainable development of territories. The authors point out the need to move from city marketing to city branding as a means of achieving a competitive advantage, which is aimed at improving the lives of local residents, creating conditions for attracting investment and supporting entrepreneurship, attracting more tourists, and territorial security. The author substantiates the possibilities of innovative communities in reviving the war-affected territories of Ukraine based on sustainable development, and also draws attention to the institutional and socio-cultural changes that need to take place in Ukrainian society to release the innovative potential of communities.

Another strong argument for ensuring the sustainable development of economic systems in the context of post-crisis (post-war) challenges and threats is the author's statement about the use of international experience, in particular, of Japanese leading corporations on the way to the recovery of Ukraine in general and its economy in particular.

In general, the authors of the scientific monograph are convinced that in the new geostrategic realities, the issues of sustainable development and the formation of security environment must be

addressed with due regard to current challenges and threats to the national security of most countries of the world, intensification of globalization and European integration processes, which can only be achieved through the use of scientifically based and clearly defined concepts.

# Prospects for sustainable development and ensuring the security of economic systems in the new geostrategic realities

Scientific monograph

Format 60x84/16
Circulation: 100 copies
15,56 p.s.

Vysoká škola bezpečnostného manažérstva v Košiciach

Košťova 1, 04001, Košice, Slovensko
2023

**ISBN 978-80-8185-069-1**