Serie speciale
e-book
Vol. 1

Public Governance, and Economic Security in Transition

A cura di
Mushfig Guliyev
Luca R. Perfetti
Viktoriya Tytok
Rustem Kadyrzhanov
Daria Zhuk

P.A.
Persona e
Amministrazione

Ricerche Giuridiche sull'Amministrazione e l'Economia
Legal Research on Public Administration and Economics

ISSN 2610-9050

1506
UNIVERSITÀ
DEGLI STUDI
DI URBINO
CARLO BO

P.A. Persona e Amministrazione
Ricerche Giuridiche sull'Amministrazione e l'Economia
Legal Research on Public Administration and Economics

Direttore responsabile

Francesca Mineo

Managing Editor

Giovanni D'Elia

Contatti

Redazione P.A. Persona e Amministrazione
Prof. Alberto Clini
Università degli Studi di Urbino Carlo Bo - Dipartimento di Giurisprudenza
via Matteotti, 1 - 61029 Urbino (PU)
Telefono: +39 0722 303250 - Fax: +39 0722 303230
email: redazione.pa@uniurb.it

Edizione on line a cura di

Urbino University Press
Settore Biblioteche di Ateneo
Università degli Studi di Urbino Carlo Bo
e-mail: uup@uniurb.it

P.A. Persona e Amministrazione è una pubblicazione on line dell'Università degli studi di Urbino Carlo Bo. Lo sviluppo e la manutenzione di questa installazione di OJS sono forniti da UniURB Open Journals, gestito dal Settore Biblioteche di Ateneo.
ISSN 2610-9050. Registrata al Tribunale di Urbino.

Index

Public Governance, and Economic Security in Transition

Governance is undergoing a transformation across the globe as countries grapple with the implications of changes in law, politics, and economies. The transformations in governance can be seen within the different contexts, such as the law and politics changing in the Eurasian Economic Union (EAEU), where differences in customs transit among member countries are a challenge to regional integration. The war in Ukraine is also catalysing changes in the public administration there, which is becoming more decentralised and digitised, and its civil society is becoming stronger and more adaptive. Economically, Eastern European countries, like Poland and Ukraine, are facing significant impediments to a sustainable economy due to political volatility, corruption, and ineffective institutions.

In these challenging times, the evolving relationship between law, governance, and the economy is critical to determining the structure of public administration. This issue will endeavour to release light on these issues, exploring the relevance of legal orders, political change, and digitalisation to governance. The articles included in this issue address immediate issues concerning the intersection of law, politics and societal outcomes but offer insights into how nascent and disruptive digital technologies will transform the practice of administration and economic governance.

The issue contains a plethora of studies on these relationships in a bid to improve our understanding of the challenges and opportunities for public administration systems in a rapidly evolving world. With authors as diverse as the studies themselves, the contributions in this issue encompass all types of work, not just that examining the legal underpinnings of governance but also that investigating the political and socio-economic developments that define the contemporary state.

Section 1: Legal Systems

The first section of this issue presents new realities of the legal system as part of state administration. Legal systems are the infrastructure of state institutions and the bureaucracy that enforces state legislation. In this section of the articles, modern legal systems and how they adapt to the contemporary world are explored, especially in relation to globalisation and regional integration. Articles in this section explore the peculiarities of customs transit in the Eurasian Economic Union (EAEU) in a critical way. The articles highlight the lack of legal regulation between EAEU countries and underscore the need for regulatory harmonisation. The authors identify the enforcement mechanism's critical weaknesses and the absence of a digital ecosystem that supports their operations as hurdles to an efficient transit system. Thus, a harmonised, legally robust system that makes for efficient operations should be prioritised in foreign trade and regional integration.

Another article in this section deals with land relations for contemporary economic conditions in Kyrgyzstan. This article explores the modern legal system's role in land relations and finds significant challenges such as lack of transparency on automated land accounting and cadastral data in automated systems. The article proposes reforms that prioritise international standards and citizens' access to land resources to make land administration more efficient.

Section 2: Political Transformation

The second section is on political transformation with a focus on the post-Soviet space. Political regimes are fluid and one must learn the nature of the changes, as it is necessary to see how governance can adapt to new socio-economic conditions. This section features an interesting comparative study of political regimes in Ukraine and Russia and their different paths since the collapse of the Soviet Union. This article sheds light on the factors behind such a political transformation, including the role of civil society and the resilience of the democratic institutions in Ukraine since the annexation of Crimea by Russia in 2014.

Moreover, the section also examines the public governance modernisation taking place in Ukraine and how governance is changing with decentralisation and digitalisation. This article illustrates how local governance has been transformed and territories have more powers, yet challenges remain with corruption and the influence of oligarchic groups. This research points to the need to push further to make this democratic governance functional and to improve public administration.

Section 3: Digital Administration

The third section of this issue examines digitalisation in public administration. Rapid digitisation is changing how governments interact with citizens and manage public services. This section presents several studies on implementing digitalisation in public administration and how it impacts efficiency, transparency, and accountability. They look at the impact of digital security on the digital economy's safety, focusing on France, Poland, Bulgaria, and Kyrgyzstan. This study provides a comparative analysis of national digital security policies and points out the differences and challenges that each country faces in securing its digital environment.

Other research in this section examines the digitalisation of financial affairs management in decentralised communities in Ukraine. It investigates the impact of a community's digital maturity and outsourcing on financial management efficiency. The findings demonstrate that digitally mature communities achieve an amazing efficiency level in their financial management, with tremendous improvements in decision-making speed, cost savings, and the accuracy of financial forecasts. This study concludes with proposing a conceptual framework for achieving the highest efficiency from financial management in their new decentralised environments through digitalisation and outsourcing.

This issue explores the change of governance in the contemporary world, dealing with legal, political, and digital governance in public administration. The articles provide insight into the challenges countries face in reforming governance to align with evolving socio-political landscapes and emphasizing the importance of legal consistency, political flexibility, and the adoption of digital solutions.

We extend our sincere gratitude to the authors, reviewers, and readers for their contributions to this issue. Your work and interest make these discussions possible, and we hope this issue sparks new ideas, fresh perspectives, and even more exciting conversations about the future of governance.

Sincerely,

Mushfig Guliyev, Viktoriya Tytok and Rustem Kadyrzhanov

PA Persona e Amministrazione
Ricerche Giuridiche sull'Amministrazione e l'Economia

Asema Beishembek Kyzy
Associate Professor at the Department of Criminal Law and Criminology, Kyrgyz National University named after Jusup Balasagyn
a-beishembekkyzy@outlook.com

Almaz Osmanova
Lawyer at the Department of Postgraduate and Doctoral Studies, Kyrgyz National University named after Jusup Balasagyn
a.osmanova1@outlook.com

Azamat Kaliev
Associate Professor at the Department of Science, Postgraduate and Doctoral Studies, International University named after K.Sh. Toktomamatov
a_kaliev@outlook.com

Berik Biyashev
University of California, Los Angeles
biyashevberik@gmail.com

Zarina Israilova
Associate Professor at the Department of International Law and Public Law Disciplines, University of World Economy and Diplomacy
zisrailova1@hotmail.com

Analysis of the functioning of corrupt networks in state governance: Contemporary political and legal methods of combating corruption

Abstract

The aim of this study was to analyse the functioning of corrupt networks in the sphere of state governance in Kyrgyzstan and to assess contemporary methods of combating corruption applied both domestically and at the international level. The research involved a review of legislation, including the Criminal Code, the Law of the Kyrgyz Republic No. 153 "On Combating Corruption", the Law of the Kyrgyz Republic No. 125 "On State Civil Service and Municipal Service", the State Strategy for Combating Corruption and Eliminating its Causes in the Kyrgyz Republic for 2021-2024, and the United Nations Convention against Corruption. The findings revealed that corruption in Kyrgyzstan affects both local and central government bodies, manifesting in the forms of bribery and the misappropriation of public funds. An analysis of the effectiveness of anti-corruption measures established that, despite existing legislative initiatives such as the adoption of anti-corruption laws and the Strategy, the implementation of these measures faces challenges due to political influence and weak enforcement practices. Furthermore, the study identified that the introduction of information technologies, such as e-government and the digitalisation of public services, significantly reduces the level of corruption, particularly in the area of public procurement. The research concluded that corruption in the sphere of state governance in the Kyrgyz Republic remains a serious issue, especially in sectors such as public procurement, taxation, the judiciary, and the regulatory and licensing system. The Corruption Perceptions Index for 2023 ranked Kyrgyzstan 141st out of 185 countries, while its ranking in the Rule of Law Index was 103rd out of 142 countries, indicating a low level of trust in the judicial system and weak protection of citizens' rights. The study highlights the need to strengthen the independence of anti-corruption bodies and enhance international cooperation to facilitate the exchange of experience and technology in the fight against corruption.

KEYWORDS: corruption – undue advantage – public trust – budgetary funds – e-government – legal awareness – state governance – political and legal aspects.

1. Introduction

Corruption remains one of the most pressing challenges in modern state governance, particularly in transition economies such as Kyrgyzstan. The research problem lies in identifying and comprehending the key factors that contribute to the persistence of corrupt networks within the state administration system. The effective fight against corruption is hindered by several factors, including institutional weakness, insufficient transparency in government operations, the influence of various political and economic elites, and weak civil oversight. It is important to note that contemporary anti-corruption methods extend beyond stricter criminal prosecution and legal sanctions. They also include comprehensive preventive measures aimed at mitigating corruption risks. These measures encompass civil service reform, the establishment of public oversight mechanisms, the use of digital technologies to enhance transparency in state processes, and the implementation of anti-corruption educational programmes. Kyrgyzstan faces the need to adopt more structured and long-term solutions based on international standards and successful practices from other countries, necessitating a deeper analysis of both internal dynamics and external factors.

A number of studies have already examined this issue. D.S. Sarieva (2023)[1] explored the impact of corruption on Kyrgyzstan's state governance system and its negative consequences for the national economy. The author concluded that corruption undermines economic, political, and social reforms, reduces the efficiency of government institutions, decreases tax revenues, leads to budget instability, and results in the inefficient allocation of public funds. Similarly, K. Hoss and L. Hoss (2022)[2] examined corruption in political systems, particularly in the context of the American republic and its founders. Their study analysed debates from the Constitutional Convention and essays from the Federalist Papers, exploring the interplay between constitutional, institutional, and moral dimensions of corruption.

B.D. Kakeshov (2011)[3], conducted extensive research on judicial corruption in his doctoral dissertation. He emphasised the profoundly negative impact of corruption within the judiciary on the state governance system in Kyrgyzstan. The author highlighted that corruption in key government institutions, including parliament, is particularly damaging to society. He noted that corrupt candidates in the Jogorku Kenesh (Parliament of Kyrgyzstan) played a role in provoking mass civil unrest, ultimately contributing to the collapse of political regimes in 2005 and 2010. B.D. Kakeshov defined political corruption as a deliberate and unlawful activity involving individuals engaged in political or governmental functions who, in collusion with other officials or political actors, seek to obtain illicit benefits and advantages. These actions, which may include bribery, abuse of power, commercial bribery, and voter manipulation, pose a serious threat to society and the state. The primary conclusion drawn was that effective institutional design, particularly in the legislative branch and its interaction with other branches of power, is key to preventing political corruption.

---

1 Sarieva, D.S. 2023. Problems of corruption in public administration. *Proceedings of the National Academy of Sciences of the Kyrgyz Republic*, 5, 106-110. https://ilim.naskr.kg/index.php/main/article/view/476

2 Hoss, K., Hoss, L. 2022. Corruption and congressional design: The federalist's dual fear of the abuse of power and abuse of liberty. In: M.J. Pomante (Ed.), *Scandal and Corruption in Congress* (pp. 13-29). Leeds: Emerald Publishing Limited. https://doi.org/10.1108/978-1-80117-119-920221001

3 Kakeshov, B.D. 2011. Criminal-legal and criminological measures to prevent corruption in the judicial system. https://viewer.rusneb.ru/ru/000199_000009_004851402?page=1&rotate=0&theme=white

The Corruption Perceptions Index (Transparency International) regularly publishes reports on global corruption levels. Kyrgyzstan consistently ranks low, indicating the widespread nature of the issue. While numerous governmental reports assess the implementation of anti-corruption strategies, their effectiveness remains limited. K.Ch. Sultanbekov and Ch.T. Aalieva (2022)[4] examined the concept of corruption based on international legal documents and Kyrgyz legislation, categorising corruption as a socio-political phenomenon. Using Transparency International's Corruption Perceptions Index (CPI) data from 2012-2021, the authors concluded that a comprehensive legal framework and strong political will from national leadership are essential for combating corruption effectively. This issue has also been investigated by B. Cuadrado-Ballesteros et al. (2020)[5], who argued that accounting reforms and transparent financial systems play a crucial role in fighting corruption by enhancing government accountability and efficiency. Their research demonstrated that corruption decreases when governments adopt International Public Sector Accounting Standards (IPSAS) and implement accrual-based accounting systems.

Several scholars, including C. Castro and I.C. Lopes (2022)[6], E.R. Sadik-Zada et al. (2022)[7], and J. Arayankalam et al. (2021)[8], emphasise that digitalisation and e-governance are closely linked to anti-corruption efforts. Digital processes increase transparency, reduce human intervention, and minimise opportunities for corrupt practices. Castro and Lopes (2022) analysed data from 175

4 Sultanbekov, K.Ch., Aalieva, Ch.T. 2022. Corruption as a socio-political phenomenon. Science, New Technologies and Innovations in Kyrgyzstan, 6, 267-270. http://science-journal.kg/media/Papers/nntiik/2022/6/%D0%9D%D0%9D%D0%A2_6-2022_PDF_267-270.pdf

5 Cuadrado-Ballesteros, B., Citro, F., Bisogno, M. 2020. The role of public-sector accounting in controlling corruption: An assessment of organisation for economic co-operation and development countries. International Review of Administrative Sciences, 86(4), 729-748. https://doi.org/10.1177/0020852318819756

6 Castro, C., Lopes, I.C. 2022. E-Government as a tool in controlling corruption. International Journal of Public Administration, 46(16), 1137-1150. https://doi.org/10.1080/01900692.2022.2076695

7 Sadik-Zada, E.R., Gatto, A., Niftiyev, I. 2022. E-government and petty corruption in public sector service delivery. Technology Analysis & Strategic Management, 36(12), 3987-4003. https://doi.org/10.1080/09537325.2022.2067037

8 Arayankalam, J., Khan, A., Krishnan, S. 2021. How to deal with corruption? Examining the roles of E-government maturity, government administrative effectiveness, and virtual social networks diffusion. International Journal of Informati Management, 58, 102203 https://doi.org/10.1016/j.ijinfomgt.2020.102203

countries between 2003 and 2019, finding that e-government, alongside political stability, accountability, economic development, and internet access, significantly reduces corruption. Their research indicated that a country must exceed an e-government development index threshold of 0.39 to achieve significant anti-corruption effects. Similarly, E.R. Sadik-Zada et al. examined the relationship between e-government development and corruption in the public sector in developing and transition economies. Their findings confirmed that digital governance reduces petty corruption in public service delivery. Additional factors, such as per capita income, political rights, civil liberties, and natural resource dependency, also influence corruption levels.

J. Arayankalam et al. (2021) explored the correlation between e-government maturity, administrative efficiency, and corruption across legislative, executive, and judicial branches. Their study also examined the impact of virtual social networks on governance transparency. Their findings suggested that a well-developed e-government infrastructure and the widespread use of digital platforms contribute to improved administrative efficiency and a decline in corruption. Despite these studies, significant gaps remain in the analysis of specific corrupt networks and effective countermeasures. In particular, insufficient attention has been given to international cooperation mechanisms and their impact on reducing corruption in Kyrgyzstan's state governance.

The present study aims to analyse the functioning of corrupt networks within state governance in Kyrgyzstan and evaluate the effectiveness of modern anti-corruption strategies, including the use of digital technologies and international best practices. The primary objectives of the research are to identify key corruption practices in Kyrgyzstan, assess the outcomes of implemented anti-corruption measures, and develop recommendations for improving anti-corruption policies.

2. Materials and Methods

This study utilised a comprehensive set of materials covering both national and international regulatory frameworks on combating corruption, which enabled an in-depth analysis of the nature and operational features of the anti-corruption system in the Kyrgyz Republic. First and foremost, the Constitution of the Kyrgyz Republic (2021)[9] was examined as the primary source of legal regulation. Through its analysis, the fundamental principles and key aspects of state governance and anti-corruption measures were identified. Special attention was given to articles governing the rights and duties of civil servants, as well as provisions concerning their accountability to the state and society.

The Law of the Kyrgyz Republic No. 153 "On Combating Corruption" (2012)[10] was analysed to explore its essence and establish the fundamental legal framework for preventing and fighting corruption at the state level, including the definition of "corruption". This law helped identify mechanisms for preventing corruption among officials and provided insights into the legal tools available for detecting, investigating, and prosecuting corruption-related offences. Additionally, the Law of the Kyrgyz Republic No. 125 "On State Civil Service and Municipal Service" (2021)[11] was studied, allowing for an exploration of the regulatory specifics of civil service activities, mechanisms for enhancing transparency and integrity within the public sector, and the income declaration system for officials.

Particular attention was given to the State Strategy on Combating Corruption and Elimination of its Causes in the Kyrgyz Republic for 2021-2024 (2020)[12], which enabled an evaluation of the practical steps undertaken by the government to fight corruption. Specific measures aimed at increasing transparency, accountability, and efficiency in governance, as well as improving anti-corruption mechanisms, were analysed. However, no corresponding anti-corruption action plan was developed for the 2020 Strategy. In response, Decree of the President of the Kyrgyz Republic No. 137 "On the State Strategy to Combat Corruption in the Kyrgyz Republic for 2025-2030" (2024)[13] was issued. This decree aimed to strengthen anti-corruption efforts by implementing effective pre-

9 Constitution of the Kyrgyz Republic. 2021. https://shailoo.gov.kg/ru/ZakonodatelstvoMyyzamdar/Konstituciya-Konstituciya/Konstituciya-24/

10 Law of the Kyrgyz Republic No. 153 "On Combating Corruption". 2012. https://online.zakon.kz/Document/?doc_id=31238115

11 Law of the Kyrgyz Republic No. 125 "On State Civil Service and Municipal Service". 2021. https://cbd.minjust.gov.kg/112303/edition/15979/ru

12 State Strategy on Combating Corruption and Elimination of its Causes in the Kyrgyz Republic for 2021-2024. 2020. https://digital.gov.kg/anti-corruption/gosudarstvennaya-strategiya-po-protivodejstviyu-korrupczii-i-likvidaczii-ee-prichin-v-kyrgyzskoj-respublike-na-2021-2024-gody/

vention mechanisms in government and local self-government bodies, improving anti-corruption legislation, and systematically executing a set of measures to achieve lasting reductions in corruption. Consequently, the Action Plan for Implementing the State Strategy on Combating Corruption in the Kyrgyz Republic for 2025-2030 (Phase I: 2025-2027) was developed. Furthermore, the United Nations Convention against Corruption (2003) (UNCAC) was analysed, providing insights into international standards for combating corruption and their integration into the national legislation of the Kyrgyz Republic. The Convention is the principal international document outlining global principles for effective anti-corruption efforts and promoting international cooperation in this field.

As part of this study, the Corruption Perceptions Index (Transparency International, 2024)[14] was examined, shedding light on its significance as a key international indicator reflecting the level of corruption in the public sector. Published by Transparency International, this index assesses public perception of corruption across different countries, including Kyrgyzstan. The index helps determine the severity of corruption issues and compare the situation across various nations.

Additionally, the Rule of Law Index was studied to highlight its relevance as an indicator assessing the degree of adherence to laws and citizens' rights. This index includes components such as the absence of corruption, the efficiency of government institutions, and access to justice (In the Rule..., 2024)[15]. Analysing this index provided a deeper understanding of the challenges facing Kyrgyzstan's legal system and the level of public trust in the judiciary. The use of these indices allowed for a quantitative assessment of corruption trends and the rule of law in the country, forming the basis for further analysis of the effectiveness of anti-cor-

13 Decree of the President of the Kyrgyz Republic of No. 137 "On the State Strategy to Combat Corruption in the Kyrgyz Republic for 2025-2030". 2024. https://gosalko.gov.kg/documents/%D0%A3%D0%BA%D0%B0%D0%B7%20%D0%9F%D1%80%D0%B5%D0%B7%D0%B8%D0%B4%D0%B5%D0%BD%D1%82%D0%B0%20%D0%9A%D0%A0%20%D0%BE%D1%82%205%20%D0%B8%D1%8E%D0%BD%D1%8F%202024%20%D0%B3%D0%BE%D0%B4%D0%B0%20%D0%A3%D0%9F%20%E2%84%96%20137.pdf

14 Transparency International: Corruption Perceptions Index. 2024. https://www.transparency.org/en/cpi/2023/index/kgz

15 In the Rule of Law Index, the Kyrgyz Republic ranks 103rd out of 142. 2024. https://worldjusticeproject.org/sites/default/files/documents/Kyrgyz%20Republic%20-%20Russian.pdf

ruption measures. This study also examined a World Bank Group report (Busuyok et al., 2022)[16], which provided valuable data on corruption-related challenges in the Kyrgyz Republic and the effectiveness of anti-corruption initiatives on a global scale, offering a deeper insight into the international context of the issue. Additionally, a report by the Central Asian Institute for the Study of Corruption and Money Laundering (2022) was reviewed, enabling an analysis of regional aspects of corruption schemes and approaches to combating them (Civil Society Report..., 2022)[17]. Furthermore, data from the National Statistical Committee of the Kyrgyz Republic were utilised to track the dynamics of corruption-related offences.

3. Results

Corruption in public administration remains one of the most complex and destructive issues, particularly in transition economies. This phenomenon negatively impacts numerous aspects of state and societal life, exerting systemic influence on political, economic, and social processes. Corruption undermines public trust in state institutions and the government. When public officials engage in corrupt practices, it creates the perception that government institutions serve private enrichment rather than the interests of society (Schembera et al., 2022). Low trust in the state hampers effective interaction between citizens and authorities, weakening governmental legitimacy and obstructing necessary reforms. Additionally, corruption exacerbates social inequality. In societies where corruption is widespread, access to public services and justice often depends on personal connections or financial resources. As a result, individuals without access to corrupt networks or sufficient financial means find themselves disadvantaged (Al-Hiari, 2022). This deepens social stratification, creating a cycle of poverty and injustice.

Another critical aspect is the hindrance of economic development. Corrupt practices increase business costs, create an unfavourable environment

16 Busuyok, A., Manuilova, N., Jamalov, T. 2022. Corporate financial reporting in the Kyrgyz Republic: Achievements supported by KAREP. https://cfrr.worldbank.org/node/4661

17 Civil Society Report on the Implementation of Chapter II (Preventive Measures) and Chapter V (Asset Recovery) of the United Nations Convention against Corruption in the Kyrgyz Republic. 2022. https://uncaccoalition.org/wp-content/uploads/UNCAC-_Full_Report_RUS.pdf

for both foreign and domestic investment, and lead to inefficient use of public resources. Investors tend to avoid countries with high corruption levels due to an unpredictable business climate and the risk of capital loss (Moltz et al., 2023). This slows economic growth, reduces national competitiveness, and impedes innovation and technological progress. Thus, corruption in public administration is a multi-level issue requiring a comprehensive approach for resolution. Combating corruption demands not only stricter oversight and accountability for civil servants but also institutional strengthening, enhanced transparency, and increased civil society participation in monitoring and control processes[18]. Kyrgyzstan, with its developed public administration system, faces serious challenges in combating corruption despite various reforms and efforts aimed at its reduction.

Corruption in Kyrgyzstan remains a systemic issue affecting all levels of governance. According to Transparency International (2024)[19], Kyrgyzstan ranked 141st out of 180 countries in the Corruption Perceptions Index (CPI) for 2023, scoring 26 out of 100 points, indicating a high level of corruption. This ranking has remained largely unchanged over recent years, despite government efforts to combat corruption: in 2020, the score was 31 points, and in 2018, it was 29 points (Figure 1). These figures demonstrate the persistent nature of corruption and the weaknesses of existing anti-corruption mechanisms.

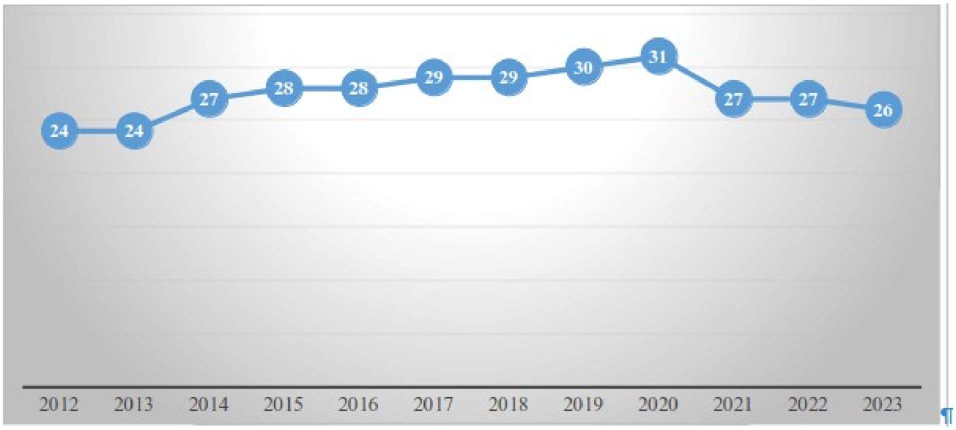


Figure 1. Corruption perception level in Kyrgyzstan 2012-2023

18 Nechyporenko, V.V., Bocheliuk, V.I., Pozdniakova-Kyrbiatieva, E.G., Pozdniakova, O.L., Panov, N.S. 2019. Value foundation of the behavior of managers of different administrative levels: Comparative analysis. Espacios, 40(34).

19 Transparency International: Corruption Perceptions Index. 2024. https://www.transparency.org/en/cpi/2023/index/kgz

Source: created by the authors based on Transparency International: Corruption Perceptions Index (2024).

Denmark ranks first in the Corruption Perceptions Index, with one of the lowest levels of corruption in the world, scoring 90 out of 100 points (Transparency International..., 2024). This indicates a high level of transparency in public administration, effective anti-corruption measures, and an independent judiciary. In particular, Denmark has consistently maintained its leading position for many years, which is attributed to strong judicial institutions and transparent policies. At the bottom of the ranking is Somalia, with a score of 11 out of 100, facing one of the most severe corruption challenges in the world. The country exhibits the poorest performance in public administration, the rule of law, and corruption control. The weakness of state institutions, ongoing conflicts, and a lack of effective oversight over public expenditure exacerbate this problem, hindering socio-economic development[20].

Regulatory and legal frameworks for combating corruption in Kyrgyzstan aim to establish institutional and legislative foundations to counter corrupt practices in public administration and other sectors. The key legislative acts governing this area include the Constitution of the Kyrgyz Republic (2021)[21], special laws, international agreements ratified by Kyrgyzstan, and regulations aimed at enhancing transparency and accountability among public officials. The Constitution of the Kyrgyz Republic, adopted via referendum on 11 April 2021, is the country's fundamental law and enshrines the principles of equality before the law, the rule of law, and the integrity of public officials (Article 1, Article 4). The Constitution underscores the importance of combating corruption and establishing legal mechanisms to prevent it.

Another key legislative act regulating anti-corruption policy is Law of the Kyrgyz Republic No. 153 "On Combating Corruption" (2012)[22], which was

20 Abilkassym, A., Bimoldanov, Y., Seraliyeva, A. 2024. Problematic Issues of Prevention of Criminal Violence in the Sphere of Family and Domestic Relations. Pakistan Journal of Criminology, 16(3), 467–482. https://doi.org/10.62271/pjc.16.3.467.487

21 Constitution of the Kyrgyz Republic. 2021. https://shailoo.gov.kg/ru/ZakonodatelstvoMyyzamdar/Konstituciya-Konstituciya/Konstituciya-24/

22 Law of the Kyrgyz Republic No. 153 "On Combating Corruption". 2012. https://online.zakon.kz/Document/?doc_id=31238115

adopted in 2019 and serves as the primary legal document outlining the state's anti-corruption policy and key measures for tackling corruption. This law was developed to strengthen preventive measures against corruption, enhance transparency in the public sector, and ensure accountability among public servants. The law explicitly defines corruption as a national security threat, undermining public trust in state institutions and obstructing the country's socio-economic development (Article 1). Accordingly, the document sets out several principles forming the foundation of Kyrgyzstan's anti-corruption efforts. The key principles include the supremacy of the law, the mandatory implementation of anti-corruption measures by all officials and government bodies, and the inevitability of punishment for corruption offences (Article 3). One of the law's primary objectives is to create a comprehensive corruption prevention system. To achieve this, the document prescribes a series of preventive measures aimed at minimising conditions conducive to corruption risks. These measures include ensuring transparency in decision-making processes, introducing mandatory income and asset declarations for public officials, and strengthening public oversight over government activities (Article 7).

Law of the Kyrgyz Republic No. 153 "On Combating Corruption" (2012) also provides for the establishment of specialised anti-corruption bodies with the authority to coordinate and implement anti-corruption measures (Articles 6, 8, 9). These bodies are empowered to initiate inspections, conduct investigations, and hold individuals suspected of corruption offences accountable. Furthermore, an essential aspect of anti-corruption policy is the monitoring and evaluation mechanism for anti-corruption programmes, which includes both internal control by government bodies and external audits by civil society and international organisations. The document establishes strict liability for various forms of corruption, such as bribery, abuse of office, illicit enrichment, and other corrupt activities. The sanctions prescribed by the law range from administrative penalties, such as fines and disqualification from holding public office, to criminal liability, including imprisonment (Article 14). It is important to note that liability extends not only to those directly involved in corruption schemes but also to those who facilitate or benefit from them.

Law of the Kyrgyz Republic No. 153 "On Combating Corruption" (2012) also emphasises the protection and security of whistle-blowers reporting corruption (Article 10). This provision aims to encourage public participation in exposing corruption violations by ensuring that whistle-blowers are not subjected to reprisals or persecution by state authorities or officials. In conclusion, Law of the Kyrgyz Republic No. 153 (2012)[23] represents a significant step towards systematising and strengthening anti-corruption measures in Kyrgyzstan. It establishes a broad range of measures aimed at preventing, detecting, and penalising corruption offences and forms the foundation for a more transparent and accountable public administration system. However, its successful implementation requires not only the effective functioning of anti-corruption bodies but also political will, judicial independence, and active participation from civil society[24,25].

Amid growing challenges related to corruption and the necessity of ensuring transparency and accountability in state institutions, the Kyrgyz Republic has developed the State Strategy on Combating Corruption and Elimination of its Causes in the Kyrgyz Republic for 2021-2024 (2020)[26]. The document underscores the importance of systemic and consistent reforms to combat corruption at all levels of state governance, emphasising the elimination of factors that contribute to the development of corrupt networks. The strategy outlines specific measures, which can be categorised into several key areas:

- institutional strengthening aimed at enhancing state anti-corruption institutions such as the Anti-Corruption Agency and the General Prosecutor's Office, with a focus on increasing their independence and effectiveness in investigating corruption offences;

23 Law of the Kyrgyz Republic No. 153 "On Combating Corruption". 2012. https://online.zakon.kz/Document/?doc_id=31238115

24 Zhandossova, S.M., Shaukenova, Z.K., Konovalov, S.A., Kuchinskaya, Y.V., Mukanova, A.Z. 2017. Kazakh and us cooperation in counteracting religious extremism. Man in India, 97(6), 171–179.

25 Kurganskaya, V.D., Shaukenova, Z.K., Dunaev, V.Yu., Abrakhmatova, G.A. 2024. Kandas and demographic processes in Kazakhstan. Acta Biomedica Scientifica, 9(2), 67–79. https://doi.org/10.29413/ABS.2024-9.2.7

26 State Strategy on Combating Corruption and Elimination of its Causes in the Kyrgyz Republic for 2021-2024. 2020. https://digital.gov.kg/anti-corruption/gosudarstvennaya-strategiya-po-protivodejstviyu-korrupczii-i-likvidaczii-ee-prichin-v-kyrgyzskoj-respublike-na-2021-2024-gody/

- improving transparency and accountability of state bodies through the implementation of digital technologies, including e-government and a digital public procurement system, which should minimise corruption risks;
- educational programmes to enhance public legal and tax literacy, which is crucial for increasing citizens' awareness of their rights and ways to protect their interests;
- reforming public procurement and public finance management through the introduction of international accounting standards in the public sector (IPSAS), which will enhance the transparency of financial operations;
- measures to increase trust in the judicial system aimed at strengthening the judiciary and ensuring access to justice;
- as well as international cooperation, highlighting the importance of collaboration with international organisations and neighbouring countries to support anti-corruption programmes.

In the context of rapid changes in public life and the need to improve the efficiency of state governance, Law of the Kyrgyz Republic No. 125 "On State Civil Service and Municipal Service" (2021)[27] represents a significant step towards the reform of public service in the country. The law regulates issues related to the legal status of state civil servants and municipal employees, their working conditions, as well as the procedures for service progression and appointment to positions. It defines the principles of state and municipal service, establishes requirements for public servants, and sets out mechanisms for overseeing their activities. The primary objective of this law is to ensure transparency and accountability while enhancing the professionalism of public and municipal employees. The law is designed to regulate public service in a manner that aligns with societal and state interests while preventing corruption. Article 3 of the law establishes the fundamental principles underpinning state civil and municipal service in Kyrgyzstan. These principles include legality, equal access to service, professionalism, stability, and accountability. They emphasise that public servants must operate strictly in accordance with the law and that

27 Law of the Kyrgyz Republic No. 125 "On State Civil Service and Municipal Service". 2021. https://cbd.minjust.gov.kg/112303/edition/15979/ru

access to state and municipal service should be open to all citizens based on a competitive selection process, ensuring fairness and equal opportunities. Article 16 enshrines the basic rights of state and municipal employees, including the right to remuneration corresponding to their position, social guarantees, and protection against unlawful interference in their professional activities. At the same time, public servants are obliged to perform their duties conscientiously, adhere to ethical standards, and refrain from using their official position for personal gain. Article 17 outlines the key obligations of state and municipal employees, including adherence to legislation, ensuring the fulfilment of state tasks, protecting national interests, and preventing conflicts of interest.

A crucial element of the legislation is the mandatory declaration of income and assets by state and municipal employees, detailed in Article 26 of the Law of the Kyrgyz Republic No. 125 "On State Civil Service and Municipal Service" (2021)[28], and requires employees to submit annual declarations containing information on income, movable and immovable property, bank accounts, as well as financial obligations of both the employee and their immediate family members (spouse and minor children). This mechanism enhances transparency and oversight of public officials' assets, preventing the concealment of unlawfully acquired wealth. Article 27 stipulates measures for verifying the accuracy of submitted declarations. Authorised bodies are required to conduct monitoring and assess whether the reported data corresponds to officials' actual income and assets. In cases of discrepancies, the law provides for disciplinary measures, such as dismissal from public service or criminal prosecution, depending on the severity of the offence. The law establishes strict liability measures for violations within the public and municipal service sector. Article 33 states that public servants who fail to fulfil their official duties, submit false information in declarations, or abuse their official position are subject to disciplinary action. In cases of serious corruption-related offences, public servants may face criminal prosecution under the legislation of the Kyrgyz Republic.

Law of the Kyrgyz Republic No. 125 "On State Civil Service and Municipal Service" (2021) lays the legal foundations for public service in

28 Law of the Kyrgyz Republic No. 125 "On State Civil Service and Municipal Service". 2021. https://cbd.minjust.gov.kg/112303/edition/15979/ru

Kyrgyzstan, ensuring the professionalism, transparency, and accountability of state and municipal employees. Its key provisions regulate recruitment and appointments based on competitive selection, mandatory declaration of income and assets by officials and their relatives, and the establishment of liability for violations in the public service sector. The law plays a crucial role in enhancing the efficiency of public administration, preventing corruption, and strengthening citizens' trust in state institutions.

As a member of the international community, Kyrgyzstan actively participates in global anti-corruption initiatives, having ratified the United Nations Convention against Corruption (2003). This document forms a legal framework obliging the country to adopt and implement international standards and mechanisms for anti-corruption activities while fostering international cooperation. The UN Convention against Corruption was ratified by Kyrgyzstan in 2005. It is one of the most comprehensive and universal international documents aimed at combating corruption, covering all aspects of anti-corruption activities, from prevention to criminal prosecution and international cooperation.

By the provisions of the UN Convention, Kyrgyzstan has committed to implementing and improving national anti-corruption legislation, ensuring transparency in state institutions, protecting whistle-blowers, and taking measures to recover assets illegally transferred abroad. The Convention also mandates the establishment of mechanisms to prevent conflicts of interest among officials, strengthen financial oversight measures, and enhance public oversight over state officials' activities. One of the significant provisions of the Convention (Convention against Corruption, 2003)[29] is the requirement for international technical assistance and cooperation in the fight against corruption. Kyrgyzstan has the opportunity to collaborate with other countries in investigating and prosecuting corruption offences, exchanging information and expertise, thereby strengthening its national anti-corruption framework.

The ratification of the UN Convention has significantly influenced the development of anti-corruption legislation in Kyrgyzstan. In line with these international commitments, the country has adopted several key laws aimed at com-

29 United Nations Convention against Corruption. 2003. https://www.un.org/ru/documents/decl_conv/conventions/corruption.shtml

bating corruption, such as the Law of the Kyrgyz Republic No. 153 "On Combating Corruption" (2012)[30] laws on income declaration for public officials, and other regulatory acts that enhance transparency and accountability in public service. International agreements ratified by Kyrgyzstan also facilitate greater international cooperation in fighting corruption. In practice, this is reflected in information exchange between countries, mutual assistance in investigations, and asset recovery. Kyrgyzstan actively collaborates with international organisations such as the World Bank, the Organisation for Economic Co-operation and Development (OECD), and other institutions, receiving technical and expert assistance in implementing anti-corruption programmes. Corrupt connections within the sphere of public administration in Kyrgyzstan represent a serious issue that permeates various levels of government and has a detrimental impact on the socio-economic development of the country. Despite numerous reforms and the establishment of specialised bodies to combat corruption, the problem persists and requires constant attention from both state institutions and the international community.

The General Prosecutor's Office of the Kyrgyz Republic (2022)[31] also plays a crucial role in the fight against corruption, particularly in investigating major corruption cases. The responsibilities of the prosecution service include not only the investigation of bribery and abuse of power among officials but also the prosecution of high-ranking public officials. In 2022, the prosecution registered 1,206 corruption cases, resulting in several senior officials, including representatives of the tax service and public administration system, being held accountable. These cases demonstrated that corruption permeates different levels of government, from lower-tier public institutions to the highest echelons of power. However, despite the significant number of investigations, the low percentage of actual convictions and sanctions in these cases highlights the difficulties within the judicial system, as well as the influence of political and economic interests in anti-corruption efforts. Another key institution involved in the fight against corruption in Kyrgyzstan is the State Committee for National

30 Law of the Kyrgyz Republic No. 153 "On Combating Corruption". 2012. https://online.zakon.kz/Document/?doc_id=31238115

31 General Prosecutor's Office of the Kyrgyz Republic. 2022. Statistics on prosecution services. https://prokuror.kg/statistics/ru

Security (SCNS). This organisation focuses not only on national security matters but also on protecting state interests from corruption-related threats. The SCNS participates in investigations of major corruption cases concerning state security issues, such as the inefficient use of budgetary funds in the defence sector or strategic procurement.

In 2016, as reported by the media, around 40 employees of the Customs Service, under the leadership of R. Matraimov, created a corruption scheme that continues to function and inflicts significant harm on state finances. On 11 February 2021, the Pervomaisky District Court of Bishkek found R. Matraimov guilty of corruption and ordered him to pay a fine of 260,000 soms for organising this scheme and causing financial damage. Approximately 40 individuals were implicated in this case, 15 of whom reimbursed the damages and were released. Among the accused were the former head of the South-Western Customs Office, N. Aytmamatov (charged with illicit enrichment), the former head of the Customs Service, N. Razzhabaliev, and the former head of the South-Eastern Customs Office, A. Boronbaev (both charged with corruption). Subsequently, Aytmamatov paid 74 million soms, N. Razzhabaliev – 6 million, and A. Boronbaev – 8 million soms, allowing them to avoid punishment (Aybashov, 2021)[32]. Additionally, the former head of the Financial Police, B. Tairov, and his deputy, E. Jamgyrchiev, were detained on suspicion of accepting large bribes. According to media reports, at the beginning of the year, they deposited 20 million soms each into an anti-corruption fund and were released under house arrest. On 19 November, the Pervomaisky District Court of Bishkek acquitted E. Jamgyrchiev. It is also worth mentioning the case of Supreme Court judges K. Osmonaliev and D. Boronbaeva, who were detained for causing multimillion-dollar damages to the state and illicit enrichment. In December 2020, K. Osmonaliev deposited 114 million soms into a special account. The former mayor of Bishkek, A. Surakmatov, was detained on charges of illicit enrichment but was released a month later after paying 170 million soms. Former deputy mayors M. Amantur and U. Azygaliev also contributed 25 million and 30 million soms, respectively, to the budget.

32 Aybashov, K. 2021. The year of the new government's fight against corruption. https://rus.azattyk.org/a/31617392.html

Despite the presence of such powerful institutions as the General Prosecutor's Office and the SCNS, significant obstacles remain in the fight against corruption. One of the key issues is the lack of transparency in government institutions, which creates a favourable environment for the emergence and proliferation of corruption schemes (Weißmüller and Zuber, 2023)[33]. To combat corruption effectively, it is essential not only to hold perpetrators accountable but also to implement systemic changes in state governance. One such measure was the introduction of the electronic government platform "Tunduk" (State Portal of Electronic Services Kyrgyz Republic, 2024)[34], which helps minimise direct contact between citizens and officials, thereby reducing opportunities for corrupt transactions. The platform allows citizens to apply for government services without direct interaction with officials, thereby lowering the risk of bribery. In 2022, over two million applications were processed through "Tunduk", reducing complaints about corruption in public services by 35%. Nevertheless, digitalisation has yet to encompass all government processes, and its full implementation requires time and additional reforms. Thus, corrupt connections in Kyrgyzstan's public administration remain a serious problem despite the presence of specialised institutions and reforms. To combat corruption effectively, it is necessary to continue implementing transparent procedures, enhancing the accountability of state bodies, and fostering civil society (Aidt et al., 2020)[35]. Only a comprehensive approach, combining strengthened law enforcement with the digitalisation of state processes, can ensure a reduction in corruption levels in the country.

For instance, in 2023, the National Statistical Committee of the Kyrgyz Republic recorded 188 corruption offences, compared to 117 in 2022. However, this increase can be attributed not only to a real rise in corruption but also to the heightened activity of anti-corruption agencies such as the State Service for

---

33 Weißmuller, K.S., Zuber, A. 2023. Understanding the micro-foundations of administrative corruption in the public sector: Findings from a systematic literature review. Public Administration Review, 83(6), 1704-1726. https://doi.org/10.1111/puar.13699

34 State Portal of Electronic Services Kyrgyz Republic. 2024. https://portal.tunduk.kg/

35 Aidt, T.S., Arye L.H., Qijun, L.I. 2020. Who takes bribes and how much? Evidence from the China corruption conviction databank. World Development, 133, 104985. https://doi.org/10.1016/j.worlddev.2020.104985

Combating Economic Crimes and the National Agency for Preventing Corruption. Despite the growing number of investigations, these agencies face resistance from high-ranking officials and oligarchic groups, making it difficult to combat systemic corruption.

Corruption schemes in the Kyrgyz Republic are widespread in public administration sectors, where decision-making is closely linked to officials' powers. Kyrgyzstan's judicial system is also highly susceptible to corruption. According to the 2023 Rule of Law Index, the Kyrgyz Republic ranks 103rd out of 142 countries globally. In the Eastern Europe and Central Asia region, Kyrgyzstan ranks 12th out of 15 countries, falling behind regional leaders such as Georgia, Montenegro, and Kosovo. The lowest rankings in the region are observed in Belarus, Russia, and Turkey. Among lower-middle-income countries, Kyrgyzstan ranks 18th out of 37. Over the past two years, most countries in the region have experienced a decline in rule of law indicators (In the Rule of Law Index, the Kyrgyz Republic ranks 103rd out of 142, 2024)[36].

The State Committee for National Security (SCNS) has identified large-scale corruption and embezzlement cases in the digitalisation of Kyrgyzstan's judicial system. Illegal schemes for siphoning off state funds were uncovered, involving high-ranking officials and private companies. These individuals signed fictitious contracts, misappropriating funds intended for the implementation of automated systems and equipment procurement. As a result of the investigation, six individuals were convicted, and damages amounting to 18.99 million soms were reimbursed. Anti-corruption measures continue, particularly at the local level (The SCNS KR stated about corruption schemes in..., 2021)[37].

The government of Kyrgyzstan is taking steps to counteract corruption by implementing various reforms and modernising state processes. The adoption of International Public Sector Accounting Standards (IPSAS) has been an important step towards improving transparency and accountability in the financial operations of state institutions in Kyrgyzstan. Given that corruption is deeply

---

36 In the Rule of Law Index, the Kyrgyz Republic ranks 103rd out of 142. 2024. https://worldjusticeproject.org/sites/default/files/documents/Kyrgyz%20Republic%20-%20Russian.pdf

37 The SCNS KR stated about corruption schemes in the judiciary during digitalisation. 2021. https://www.centralasian.org/a/31611942.html

entrenched in the financial system, the introduction of these standards has created more transparent accounting and reporting mechanisms, significantly complicating opportunities for the illicit use of public funds. The primary purpose of IPSAS is to standardise and harmonise public sector accounting at the international level, ensuring uniform approaches to financial management in state institutions. This includes standardised reporting, operational transparency, and providing a comprehensive picture of the state's financial situation, accessible for analysis by all stakeholders. Transparency and strict financial oversight enable the early detection of corruption schemes and prompt measures to eliminate them[38].

According to data from the World Bank Group, since the introduction of IPSAS, financial control over public institutions has improved by 22% (Busuyok et al., 2022)[39]. This has significantly reduced instances of corruption, particularly in such critically important areas as public procurement and budget allocation. Before the implementation of these standards, corruption schemes were often based on the lack of transparency in government contracts and complex bureaucratic procedures, which allowed officials to manipulate the allocation processes for personal gain. However, IPSAS standards require more thorough accounting of all financial transactions, making such schemes significantly harder to implement (Gallahue, 2022)[40].

Furthermore, the adoption of IPSAS has positively impacted the efficiency of public asset and resource management. One of the issues prior to the introduction of these standards was the inefficient use of public assets, which allowed corrupt officials to benefit through manipulations with state resources. Now, every transaction involving public assets must be recorded and documented in accordance with international standards, reducing the possibility

38 Syzdykov, A., Abdirova, A., Aralbayeva, M., Tapenova, A., Makhanov, T. 2016. Fraction as a legal form of activity of the parliament of the Republic of Kazakhstan (taking into account the world experience). Indian Journal of Science and Technology, 9(16), 89832. https://doi.org/10.17485/ijst/2016/v9i16/89832

39 Busuyok, A., Manuilova, N., Jamalov, T. 2022. Corporate financial reporting in the Kyrgyz Republic: Achievements supported by KAREP. https://cfrr.worldbank.org/node/4661

40 Gallahue, P. 2022. Law and public administration ethics. In: Farazmand, A. (Ed.), Global Encyclopedia of Public Administration, Public Policy, and Governance (pp. 7279-7283). Cham: Springer. https://doi.org/10.1007/978-3-030-66252-3_1184

of assets being used for personal gain[41,42]. A crucial role in ensuring the success of the reform is played by the digitalisation of accounting and reporting processes. The integration of IPSAS standards with digital tools, such as the "Tunduk" e-government system, has significantly improved access to information and enabled real-time tracking of financial transactions.

Beyond institutional measures, fostering an anti-corruption culture among citizens is essential in combating corruption[43]. According to the 2022 report of the Central Asian Institute for the Study of Corruption and Money Laundering, 68% of the population consider corruption one of the country's main problems (Civil Society Report..., 2022)[44]. At the same time, 45% of respondents indicated that anti-corruption measures are ineffective, while 39% noted a lack of transparency in government actions. Regional statistics are presented in Table 1. This indicates that the public does not perceive the government's anti-corruption efforts as sufficient.

Table 1. Perception index of corruption levels in executive authorities and local government

Region	2019	2020	2021	2022	2023
Barken Reagion	37.4	40.3	45.7	59.4	52.4
Jalal-Abad Region	40.8	36.2	38	38.3	40.1
Issyl-Kul Region	45.7	44.3	51.3	48.1	58.7
Naryn Region	24.6	36	51.5	46.6	52.7
Osh Region	12.6	2.7	13	32.7	19.9
Talassk Region	29.5	32.9	36.4	31.5	36
Chuy Region	17.4	11.3	27	22.7	12.1
Bishkek	-18	-18.2	2.7	-0.2	-0.1
Osh	22.8	33	40.4	33.2	34.1

41 Senderov, S.M., Yusifbeyli, N.A., Rabchuk, V.I., Huseynov, A.M., Nasibov, V.K., Vorobev, S.V., Guliyev, H.B., Smirnova, E.M. 2019. Geopolitical features of energy security in the Caspian regions of Russia and Azerbaijan. Geopolitics of Energy, 41(1), 5–12.

42 Nurekeshov, T., Mukasheva, A., Bekisheva, S., Khassenov, M. 2018. The problem of providing legal groundwork for the balance of traditional and alternative energy development in the context of kazakhstan's shift to green energy. Journal of Advanced Research in Law and Economics, 9(5), 1716–1728. https://doi.org/10.14505/jarle.v9.5(35).25

43 Mukasheva, A.A., Sabirov, K.K., Alenov, M.A., Bekisheva, S.D. 2018. The legal status of a bona fide purchaser of a land plot according to the legislation of Kazakhstan and Germany: Comparative analysis. Journal of Advanced Research in Law and Economics, 9(3), 1043–1049. https://doi.org/10.14505/jarle.v9.3(33).31

44 Civil Society Report on the Implementation of Chapter II (Preventive Measures) and Chapter V (Asset Recovery) of the United Nations Convention against Corruption in the Kyrgyz Republic. 2022. https://uncaccoalition.org/wp-content/uploads/UNCAC-_Full_Report_RUS.pdf

Source: created by the authors based on Index "Personal views about the level of corruption in executive government authorities and local government" (2025)[45].

Modern anti-corruption methods employed in other countries but not yet fully implemented in Kyrgyzstan include a range of innovative strategies and tools that have proven effective internationally. The use of blockchain technology for public transactions is particularly promising in the fight against corruption, as blockchain ensures data transparency and immutability (Damijan, 2023)[46]. For instance, in countries such as Georgia and Estonia, blockchain is used for land registry and government contract processing. This technology makes it possible to track every transaction in the system, preventing fraud and document forgery. Implementing blockchain technology in Kyrgyzstan for public procurement and other financial operations could significantly enhance transparency and eliminate the possibility of data manipulation.

Some countries, such as Indonesia, Kenya, and the Philippines, have established specialised anti-corruption courts that handle corruption cases independently of political pressure. These courts consist of judges specifically trained in investigating and adjudicating corruption cases, ensuring a more professional approach to justice in this area (Mandagie et al., 2023)[47]. Kyrgyzstan lacks a specialised judicial system for handling corruption cases, and establishing an independent anti-corruption court could improve the judicial process by eliminating corruption's influence on legal decisions.

In countries like India and South Korea, crowdsourcing platforms allow citizens to anonymously report corruption violations. For example, the Indian platform "I Paid a Bribe" collects data on bribery and corruption cases, helping to map corruption hotspots in the country and highlight the most problematic areas (Verma et al., 2023)[48]. Introducing such platforms in Kyrgyzstan would

45 Index "Personal views about the level of corruption in executive government authorities and local government". 2025. https://stat.gov.kg/en/opendata/category/63/

46 Damijan, S. 2023. Corruption: A review of issues. Economic and Business Review, 25(1), 1-10. https://doi.org/10.15458/2335-4216.1314

47 Mandagie, M., Natanael, N., Damayanti, A. 2023. Corruption in Indonesian reformed era: Cases of bribery and gratification in bureaucracy. Law and Political Sciences, 4(1), 1-14. http://repository.uki.ac.id/id/eprint/10203

48 Verma, R., Gupta, S., Birner, R. 2023. What do (future) civil servants think of bribery and corruption? Evidence from India. Development Policy Review, 41(3), e12673. https://doi.org/10.1111/dpr.12673

enable citizens to actively participate in anti-corruption efforts without fear of retaliation and to provide real-time information.

Estonia serves as an example of a country that has almost entirely digitised public services, minimising human intervention and, consequently, opportunities for corruption (Semenzin et al., 2022)[49]. E-government and process automation reduce corruption risks since all transactions are recorded and easily traceable. For example, Estonia's e-Residency system enables most bureaucratic processes to be conducted online (Tan et al., 2020)[50]. Kyrgyzstan has taken steps towards digitalisation through the "Tunduk" project, but the system still requires expansion and deeper integration to encompass all aspects of public administration.

Many countries, such as the United States and the United Kingdom, have introduced whistle-blower protection programmes that safeguard individuals reporting corruption from retaliation and provide security guarantees (Clark et al.[51], 2020; Kobroń-Gąsiorowska, 2021[52]). These programmes also offer financial rewards for providing reliable information that helps uncover corruption schemes. In Kyrgyzstan, whistle-blower protection has not received adequate attention. Implementing such a programme could motivate citizens to report corruption cases more actively, knowing their rights would be safeguarded. In the United Kingdom and the United States, open data platforms are widely used to publish detailed information on budget expenditures, government contracts, and other aspects of public administration (Chordiya et al., 2019)[53]. These data are

49 Semenzin, S., Rozas, D., Hassan, S. 2022. Blockchain-based application at a governmental level: Disruption or illusion? The case of Estonia. Policy and Society, 41(3), 386-401. https://doi.org/10.1093/polsoc/puac014

50 Tan, L., Tivey, D., Kopunic, H., Babidge, W., Langley, S., Maddern, G. 2020. Part 2: Blockchain technology in health care. ANZ Journal of Surgery, 90(12), 2415-2419 https://doi.org/10.1111/ans.16455

51 Clark, D., Wang, T.-S., Shapeero, M., Staley, A.B., Ermasova, N., Usry, M. 2020. A comparative study of the whistleblowing activities: Empirical evidence from China, Taiwan, Russia, and the United States. In: C.R. Baker (Ed.), Research on Professional Responsibility and Ethics in Accounting (pp. 141-159). Leeds: Emerald Publishing Limited. https://doi.org/10.1108/S1574-076520200000023008

52 Kobroń-Gąsiorowska, Ł. 2021. The development of whistleblowing laws in the United States and Europe (de lege ferenda remarks). Studies on Labour Law and Social Policy, 28, 139-155. https://doi.org/10.4467/25444654spp.21.012.13402

53 Chordiya, R., Sabharwal, M., Relly, J.E., Berman, E.M. 2019. Organizational protection for whistleblowers: A cross-national study. Public Management Review, 22(4), 527-552. https://doi.org/10.1080/14719037.2019.1599058

available for analysis by independent researchers, journalists, and activists, increasing transparency and helping identify potential corruption cases. In Kyrgyzstan, data publication is often restricted, and access to information is complicated. Implementing open data platforms and ensuring easy access to them could encourage public oversight of government spending[54,55].

Singapore and Hong Kong implement systematic training programmes for anti-corruption agency employees. These programmes ensure continuous professional development, enabling specialists to stay updated on new methods and tools for combating corruption (Kim, 2020)[56]. Kyrgyzstan also needs to establish continuous educational programmes for anti-corruption personnel, allowing them to counteract complex corruption schemes more effectively and utilise the latest technologies. Implementing these methods in Kyrgyzstan could significantly enhance the effectiveness of anti-corruption efforts. Technological innovations, digitalisation, and the protection of citizens' rights, combined with international standards, could create a more transparent and accountable system of public administration.

4. Discussion

The study examined key aspects of the functioning of corrupt networks in state governance in the Kyrgyz Republic, as well as modern methods of combating corruption. The findings indicated that corruption remains one of the most significant problems faced by public administration, despite the measures taken to reduce it.

One of the main conclusions is that existing anti-corruption measures, such as the establishment of specialised agencies and the introduction of internatio-

54 Petrova, M.M., Sushchenko, O., Trunina, I., Dekhtyar, N. 2018. Big data tools in processing information from open sources. In: 2018 IEEE 1st International Conference on System Analysis and Intelligent Computing, SAIC 2018 - Proceedings (article number: 8516800). Kyiv: Institute of Electrical and Electronics Engineers. https://doi.org/10.1109/SAIC.2018.8516800

55 Yevseiev, S., Laptiev, O., Lazarenko, S., Korchenko, A., Manzhul, I. 2021. Modeling the protection of personal data from trust and the amount of information on social networks. EUREKA, Physics and Engineering, 2021(1), 24–31. https://doi.org/10.21303/2461-4262.2021.001615

56 Kim, H. 2020. Corruption as infrastructure: Rendering the new Saigon global. International Journal of Urban and Regional Research, 44(6), 1057-1071. https://doi.org/10.1111/1468-2427.12951

nal accounting standards, have limited effectiveness in conditions of insufficient oversight, transparency, and civic engagement. This issue was explored by O. Meza and E. Pérez-Chiqués (2021)[57], who developed a framework for analysing how corruption becomes entrenched at the local level, focusing on detailed corruption practices. The authors argue that excessive reliance on formal institutions in anti-corruption measures is ineffective, as it ignores deeply rooted corrupt networks and practices. This study, dedicated to corruption networks in state governance in the Kyrgyz Republic, also identified the issue of the persistence of corrupt practices, particularly in areas such as public procurement and taxation. Unlike the work of the aforementioned authors, this research places greater emphasis on systemic factors, such as deficiencies in legislation, a lack of transparency, and weak oversight in the public sector. The impact of international accounting standards and digital technologies on reducing corruption levels was also analysed, which was not a focus of the authors' study. While their research highlights the importance of a detailed approach and contextual studies, this study is more oriented towards systemic institutional changes and legislative reforms in the Kyrgyz Republic, which constitute a crucial step in the fight against corruption at the national level. This issue has also been examined by the scholar D. Nyberg (2021)[58]. His research focuses on how corporate political activity distorts democratic processes, excluding civic representation and influencing political decision-making in Western liberal democracies. The author asserts that corporate participation corrupts democracy by creating dependencies between political processes and corporate interests, thereby weakening citizens' voices and influence. However, this study focuses on corruption networks in state governance in the Kyrgyz Republic, where corruption arises not from corporate influence but from weak oversight, a lack of transparency, and the absence of effective anti-corruption mechanisms. Unlike D. Nyberg's work, which analyses political corruption through the lens of corporate capture, this study explores systemic problems in the public sector, such as corruption in public procurement and tax authorities. The propo-

57 Meza, O., Pérez-Chiqués, E. 2021. Corruption consolidation in local governments: A grounded analytical framework. Public Administration, 99(3), 530-546 https://doi.org/10.1111/padm.12698

58 Nyberg, D. 2021. Corporations, politics, and democracy: Corporate political activities as political corruption. Organization Theory, 2(1), 263178772098261. https://doi.org/10.1177/2631787720982618

sed reforms include the implementation of international accounting standards and digital technologies, which are more relevant in the context of the Kyrgyz Republic[59].

The study by J. Gillespie et al. (2019)[60] focuses on corruption in the context of public-private partnerships, where resource allocation rules may be contradictory between the government, businesses, and the public. The authors argue that corruption manifests when state assets are transferred into private hands legally but against the public interest, necessitating an anti-corruption approach that considers societal needs. An example is Vietnam, where the government and business circles have different perspectives on the "proper" allocation of resources compared to public expectations[61,62]. In contrast, this study focuses on the functioning of corruption schemes in state governance in the Kyrgyz Republic, paying particular attention to systemic problems in public procurement, taxation, and the judiciary. Unlike the aforementioned study, which examines conflicts between public and state interests in the context of public-private partnerships, this research identifies corruption networks arising from non-transparent procedures and weak public oversight. The emphasis is placed on modern anti-corruption methods, including improved financial oversight, digitalisation, and the strengthening of anti-corruption institutions, which are directly linked to internal state processes and pressing issues in Kyrgyzstan.

The COVID-19 pandemic has had a profound impact on global society, undermining not only healthcare systems but also economic and governmental

59 Karasheva, Z., Assanova, S., Nurakhmetova, G., Nuranova, R. 2024. Digital (Electronic) Paid Provision of Services in the Field of Legal Activity. Revista de Direito, Estado e Telecomunicacoes, 16(1), 25–41. https://doi.org/10.26512/lstr.v16i1.46160

60 Gillespie, J., Van Nguyen, T., Nguyen, H.V., Le, C.Q. 2019. Exploring a public interest definition of corruption: Public private partnerships in socialist Asia. Journal of Business Ethics, 165(4), 579-594. https://doi.org/10.1007/s10551-018-04101-8

61 Umbetbayeva, Z.B., Suleimenova, S.Zh., Nurakhmetova, G.G., Saimova, S.A., Baitukayeva, D. (2023). The Vienna Convention for the protection of the ozone layer and its role in promoting environmental sustainability and implementation in the national legislations of participating states. Rivista di Studi sulla Sostenibilita, 13(1), 313–330. https://doi.org/10.3280/RISS2023-001-S1020

62 Ginters, E., Mezitis, M., Aizstrauta, D. 2018. Sustainability simulation and assessment of bicycle network design and maintenance environment. In: 2018 International Conference on Intelligent and Innovative Computing Applications, ICONIC 2018 (article number: 8601225). Plaine Magnien: Institute of Electrical and Electronics Engineers. https://doi.org/10.1109/ICONIC.2018.8601225

structures[63,64]. In this context, the study by V. Mlambo and M.M. Masuku (2020)[65] focuses on how COVID-19 exacerbated corrupt practices worldwide, including in South Africa, revealing their destructive impact on public finances. The authors note that the pandemic posed a significant challenge to governance and healthcare delivery while creating additional opportunities for corruption schemes, especially in resource distribution for combating the virus. The article discusses the consequences of corruption during crises and how it affected the country's economic situation, forcing the government to seek international financial assistance. This study also highlights the issue of corruption but within the context of structural characteristics and systemic reforms. Unlike South Africa, where the pandemic worsened existing corruption, in Kyrgyzstan, the focus is not only on external factors but also on deeply entrenched systemic problems. Modern anti-corruption methods are considered, including the implementation of international accounting standards, digitalisation of processes, and strengthening public oversight, which allows for more effective counteraction to corruption schemes. However, it is necessary to agree with the authors' conclusions, as their study serves as an important reminder that transparency and accountability in governance must be prioritised during crises to prevent abuses and maintain public trust. The discussion of internationally applied methods, such as specialised anti-corruption courts and digitalisation of public services, demonstrates their potential applicability in the Kyrgyz Republic. The study by A. Addo (2021)[66] examines the impact of digitalisation on reducing opportunities for petty corruption in government administrations in developing countries, with a focus on Ghana's customs administration. The

---

63 Amandykova, S., Korpebayev, Z., Bukalerova, L., Mukasheva, A., Userova, A., Zayed, N.M. 2021. Legal Regulation of the Procedure for Elections of Deputies of the Majilis of the Parliament of the Republic of Kazakhstan. Journal of Legal, Ethical and Regulatory Issues, 24(5), 1–10.

64 Zhiyengaliyeva, A., Yerzhan, B., Aliya, S. 2024. Regulation of the provocation of a crime in the criminal legislation of foreign countries: what should Kazakhstan take into account? Scientific Herald of Uzhhorod University. Series Physics, 55, 1405–1413. https://doi.org/10.54919/physics/55.2024.140qo5

65 Mlambo, V.H., Masuku, M.M. 2020. Governance, corruption and COVID-19: The final nail in the coffin for South Africa's dwindling public finances. Journal of Public Administration, 55(3-1). https://hdl.handle.net/10520/ejc-jpad-v55-n3-1-a11

66 Addo, A. 2021. Controlling petty corruption in public administrations of developing countries through digitalization: An opportunity theory informed study of Ghana customs. Information Society, 37(2), 99-114. https://doi.org/10.1080/01972243.2020.1870182

research analyses how the implementation of information technologies over 30 years has limited opportunities for corruption by restructuring work processes and organisational mechanisms. The primary emphasis is on the idea that it is opportunities, rather than systemic factors or motives, that contribute to corruption crimes and that digitalisation can reduce these opportunities.

Although this study also considers modern anti-corruption methods, including digitalisation, it focuses on corruption networks in state governance in the Kyrgyz Republic, particularly in key areas such as public procurement, the tax system, and the judiciary. Unlike the focus on individual agencies, this study covers systemic aspects of corruption in public administration, identifying vulnerabilities in transparency and oversight. It concludes that the implementation of international accounting standards and legal norms, along with the strengthening of anti-corruption bodies, requires further development for effective anti-corruption efforts. While Addo's research demonstrates the successes of digitalisation in Ghana, this study shows that digitalisation in Kyrgyzstan is also important but must be accompanied by institutional reforms and reinforcement. A similar issue was raised by I. Ismail et al. (2020)[67]. Their study analyses the effectiveness of e-government implementation in local government bodies in Indonesia as a means of combating corruption. The authors argue that despite expectations of increased transparency and accountability through digital public services, the introduction of e-government in Indonesia has not significantly reduced corruption at the local level. Although the system aims to prevent corrupt practices such as collusion and nepotism, its practical implementation has been less successful.

This study also examines modern anti-corruption methods, including e-government implementation. However, unlike the Indonesian experience, it emphasises a comprehensive approach that includes not only digitalisation of public services but also improving transparency in public procurement, reforming the legislative framework, increasing civic oversight, and implementing international accounting standards. It was found that while electronic systems can help reduce

67 Ismail, I., Fathonih, A., Prabowo, H., Hartati, S., Redjeki, F. 2020. Transparency and corruption: Does E-government effective to combat corruption? International Journal of Psychosocial Rehabilitation, 24(4), 5396-5404. http://eprints.ipdn.ac.id/id/eprint/5662

corruption, they will only be effective if strong institutions and political will for anti-corruption reforms are present. In this aspect, this study underscores the need for a comprehensive approach where digital technologies are only one part of the solution to corruption, differing from the more narrowly focused research on e-government in Indonesia.

The issue of corruption in public service remains one of the most pressing problems requiring comprehensive analysis and effective solutions[68]. In this context, the study by J.-H. Meyer-Sahling and K.S. Mikkelsen (2022)[69] explores the role of disciplinary codes and codes of ethics in curbing corrupt practices. The authors focus on the interaction of these instruments and their ability to enhance anti-corruption measures. Conducting a survey among public officials in Poland, the study demonstrates that the combined application of disciplinary and ethical codes leads to stricter compliance than their isolated use. Thus, the work highlights the importance of a multi-level approach to anti-corruption policy, where consistent governance tools become key to increasing the effectiveness of the fight against corruption.

This research focuses on the fight against corruption in the Kyrgyz Republic, analysing systemic issues. It is important to note that, although disciplinary and ethical codes in Kyrgyzstan also play a role, they have not been analysed in this study. However, one cannot fully agree with the authors' opinion, as the mere implementation of these codes is insufficient to effectively curb corruption. In the Kyrgyz Republic, the main factors remain the lack of transparency and weak public oversight, which allow corruption schemes to function at the state level. Therefore, unlike the Polish experience, where the interaction of codes strengthens anti-corruption measures, Kyrgyzstan requires a more comprehensive approach, involving not only ethical and disciplinary measures but also institutional reforms, the introduction of international accounting standards, and the activation of civil oversight.

---

68 Akshataeva, Z., Baizhanova, K., Beisebaeva, S., Sherimkulova, G., Nurahmetova, G., Khamzina, Z. 2016. The framework of social security system public management in Kazakhstan. International Journal of Environmental and Science Education, 11(18), 11645–11657.

69 Meyer-Sahling, J.-H., Mikkelsen, K.S. 2022. Codes of ethics, disciplinary codes, and the effectiveness of anti-corruption frameworks: Evidence from a survey of civil servants in Poland. Review of Public Personnel Administration, 42(1), 142-164. https://doi.org/10.1177/0734371X20949420

5. Conclusions

The analysis of the functioning of corrupt links in state governance in the Kyrgyz Republic revealed that corruption remains one of the most serious issues negatively impacting economic development, social stability, and citizens' trust in state institutions. The most vulnerable areas to corruption include public procurement, taxation, and the judicial system, where the lack of transparency, weak control, and absence of accountability create favourable conditions for corrupt abuses. Modern countermeasures, such as the creation of specialised anti-corruption bodies, the implementation of international accounting standards in the public sector (e.g., IPSAS), and the active use of digital technologies for monitoring government processes, demonstrate their effectiveness. However, these measures require further improvement, including the development of the independence of anti-corruption bodies, strengthening control mechanisms, and introducing transparent procedures. Additionally, key factors for the successful fight against corruption include improving legal and tax literacy among the population, strengthening the role of civil society, and actively involving the population in anti-corruption initiatives, which contributes to the creation of a more sustainable and effective system to combat corruption. This study has analysed several key indicators reflecting the level of corruption and the state of law and order in the Kyrgyz Republic. According to the Corruption Perceptions Index (CPI), Kyrgyzstan ranked 141st out of 185 countries, highlighting significant problems with corruption in the public sector. This indicator points to high levels of corruption, which negatively affect trust in state institutions. According to the rule of law index developed by the World Bank, Kyrgyzstan ranks 103rd out of 142 countries, indicating weak protection of citizens' rights, low trust in the judicial system, and insufficient effectiveness.

These data emphasise the need for further strengthening of anti-corruption reforms and improving legal oversight in the country. Future research should focus on how the strengthening of civil society, the role of independent media, and public organisations can help shape an anti-corruption culture and increase public oversight of state processes. Additionally, it is important to examine successful examples of anti-corruption strategies from other countries and adapt them to the conditions of Kyrgyzstan, identifying potential obstacles and ways to overcome them. Furthermore, future research could focus on the use of digital technologies, such as blockchain and online platforms, to improve transparency and accountability in government agencies. These directions could significantly expand the understanding of the issues and contribute to the development of more effective anti-corruption strategies in public administration.

One of the main limitations of this study is the lack of information on the actual level of corruption within government agencies in Kyrgyzstan. Government institutions often do not publish up-to-date data on corruption offences, making it difficult to conduct a thorough analysis and potentially leading to an underestimation of the scale of the problem. Additionally, the lack of systematic statistics on investigations and legal cases related to corruption crimes creates barriers to a deep understanding of the dynamics of corrupt links. It should also be noted that corruption is a hidden phenomenon, and many cases remain outside the scope of law enforcement and society as a whole. This can lead to a distortion of perceptions of the level of corruption and, as a consequence, an underestimation of the existing problems in the state governance system.

Azamzhan Makhmudov
Lecturer at the Department of Civil Law and Procedure, Osh State University
makhmudovazamzhan@gmail.com

Bakytbek Ibraimov
Lecturer at the Department of Civil Law and Procedure, Osh State University
bak.ibraimov@outlook.com

Tologon Uulu Talantbek
Lecturer at the Department of Civil Law and Procedure, Osh State University
t-tologonuulu@hotmail.com

Kadirbek Kimsanovich
Lecturer at the Department of Civil Law and Procedure, Osh State University
k_kimsanovich@outlook.com

Ulanbek Uchuev
Lecturer at the Department of Civil Law and Procedure, Osh State University
u-uchuev@hotmail.com

LEGAL ASPECTS OF THE REGULATION OF LAND RELATIONS IN THE CONTEXT OF MODERN ECONOMIC CHANGES

Abstract

The purpose of this work is to examine the legal mechanisms governing land relations in the context of modern economic changes, with a particular focus on Kyrgyzstan, the USA, and European countries. The study employs a comprehensive approach, incorporating a comparative legal method to analyse the legislation of Kyrgyzstan, the USA, and European countries, a systems analysis method to assess the effectiveness of legal norms, and an empirical method to investigate the practical application of land legislation. The study addresses key challenges, including the lack of transparent land accounting, insufficient automation of cadastral data, and legal uncertainty in the field of land management. Primary attention is given to the regulatory and legal framework of Kyrgyzstan, the activities of the state agency "Cadastre", and statistical data on land use. To broaden the context, a comparative analysis is conducted with the legislation of Germany and France, which exhibit a high level of decentralisation and automation in land relations. Several methods are employed in the study, notably the analysis of regulatory legal acts and cartographic analysis. Particular emphasis is placed on the role of modern information technologies in enhancing the efficiency of land administration. The article also outlines issues related to limited citizen access to information about land resources and the restrictions in inter-agency cooperation, which hinder effective land management. In addition, the impact of economic changes on regulatory and legal frameworks is analysed, with proposed mechanisms for adapting legislation to new conditions. Consequently, the article presents recommendations for improving land legislation in Kyrgyzstan, notably the establishment of transparent electronic accounting mechanisms and the integration of international standards. The importance of enhancing cooperation between state bodies and ensuring citizen access to land information is particularly emphasised. This study seeks to address gaps in the scientific literature concerning the impact of economic changes on land law in Kyrgyzstan and to offer practical recommendations for reform in this field.

KEYWORDS: international experience; decentralisation; property rights; land use; environmental standards; legislative mechanisms; state control.

1. Introduction

The relevance of studying the legal aspects of regulating land relations in the context of modern economic changes arises from the numerous challenges faced by countries amid globalisation, economic instability, and the transformation of land relations. Under these conditions, it is essential to examine the experiences of other countries in effectively regulating land relations, as sound legal support in this area can serve as a foundation for stable economic development and social well-being. Of particular interest is the issue of adapting land legislation to the requirements of a market economy, in which land resources become not only objects of ownership but also vital economic assets that influence the development of the agricultural sector and local communities. In Ukraine, as in several other post-Soviet countries, land relations have undergone significant changes following the transition to market conditions; however, the reform process remains incomplete and requires further enhancement of legal regulation. Modern economic changes – specifically the financial crisis, shifts in the agricultural sector, global climate change, and transformations in international trade – necessitate a re-evaluation of existing land management mechanisms. Issues such as efficient land use, protection, and rational distribution are increasingly critical in the context of economic instability and climate change, where every land resource is of vital importance for ensuring food security, preserving ecosystems, and promoting sustainable development[1,2]. Given these circumstances, the study of the legal aspects of land relations in countries undergoing similar transformation processes becomes particularly significant. The experience of Kyrgyzstan merits special attention; despite its small size and relatively limited resources, the country has implemented several key measures in land administration, resulting in notable improvements in the state of land relations. A comparative analysis of this experience with that of European countries – particularly those with longstanding market economies – can yield valuable insights for the further reform of land legislation in Ukraine.

As of 2024, differing perspectives exist on the development of land relations in the context of modern economic changes. Existing studies underscore the need to enhance the effectiveness of legal regulation of land use, expand land ownership rights, and highlight the importance of both national and international coordination in land policy matters. However, there remains a notable gap in the analysis of specific examples of land reforms in individual countries, which could facilitate a more in-depth comparison of various models of land relations regulation.

In examining the legal regulation of land relations in Kyrgyzstan, many researchers focus on constitutional and legal aspects, such as mechanisms for the legal protection of agricultural land, land use under market reforms, and land privatisation. Notably, the study by Z. Bakalbaev (2022)[3] addresses the constitutional and legal regulation of economic development in Kyrgyzstan, which is crucial

1 Karasheva, Z.T., Omarova, A.B., Nurakhmetova, G.G., Yessekeyeva, A.A., Moldagaliyeva, A.S. 2023. International legal agreements on the provision of environmental sustainability. *Rivista di Studi sulla Sostenibilita*, 13(1), 135–150. https://doi.org/10.3280/RISS2023-001-S1009.

2 Toneva, D., Dimitrova, D. 2024. Some Aspects of the Water Crisis in Bulgaria. *Vide. Tehnologija. Resursi - Environment, Technology, Resources*, 1, 373–377. https://doi.org/10.17770/etr2024vol1.7972.

3 Bakalbaev, Z. 2022. Constitutional and legal regulation of the economic development of Kyrgyzstan as part of USSR. *Bulletin of Science and Practice,* 8(10), 236-239. https://doi.org/10.33619/2414-2948/83/32.

for understanding the role of land relations within the broader context of economic change. Within the agricultural sector, particular attention is given to issues related to the restoration of agricultural land. M. Leiba (2024)[4] highlights the specific legal relationships involved in land restoration, which constitute an essential component of agricultural policy and food security efforts in many countries, including Kyrgyzstan. To analyse land relations within the European context, the study by J. Gyourko et al. (2021)[5] investigates local regulation of land use in the United States, examining land management mechanisms at the regional level. This comparison allows for a cross-system evaluation of approaches to land relations regulation in different economic and political frameworks. The legal aspects of land relations regulation in the context of modern economic changes are critically important for ensuring sustainable development, both in Kyrgyzstan and European countries. Effective legislation fosters the rational use of land resources, attracts investment, and protects the rights of landowners and users.

At the same time, as noted by X. Qin (2020)[6] in a study on the regulation of foreign land ownership in the United States, legal norms should incorporate both practical and theoretical perspectives to balance economic interests with national security – an issue relevant to other countries undergoing economic transformation and shifts in land relations. Equally important is the analysis of land regulation practices in European countries, particularly through the lens of land deals and their implications for food security. The publication by R.M. Petrescu-Mag et al. (2019)[7] explores the social functions of large-scale land deals in five Eastern European countries, revealing the connections between land policy and food security. The work of L. Hudecová and P. Kyseľ (2023)[8] examines legislative measures to protect agricultural land in the context of European Union land re-

---

4 Leiba, M. 2024. Peculiarities of legal relations on restoration of agricultural land. *Law and Innovations,* 46(2), 81-86. https://doi.org/10.37772/2518-1718-2024-2(46)-12.

5 Gyourko, J., Hartley, J.S., & Krimmel, J. 2021. The local residential land use regulatory environment across U.S. housing markets: Evidence from a new Wharton Index. *Journal of Urban Economics,* 124, 103337. https://doi.org/10.1016/j.jue.2021.103337.

6 Qin, X. 2020. The US regulations on foreign ownership of land: Practical and theoretical perspectives. *Education, Law and Politics,* 3(2), 49-78. https://doi.org/10.22158/elp.v3n2p49.

7 Petrescu-Mag, R.M., Petrescu, D.C., Réti, K.-O. 2019. My land is my food: Exploring social function of large land deals using food security-land deals relation in five Eastern European countries. *Land Use Policy,* 82, 729-741. https://doi.org/10.1016/j.landusepol.2019.01.003.

gulation, contributing to a broader understanding of effective land protection strategies – an area of relevance to Kyrgyzstan given its agrarian orientation. Furthermore, studies by P. Stankovics et al. (2020)[9] draw attention to issues surrounding land protection and capital privileges, which are critical components in the analysis of legal regulation amid market transformations. In analysing the institutional framework for land relations regulation within decentralised systems of governance, O. Garazha (2021)[10] emphasises the role of decentralisation in improving land management efficiency, which significantly influences the adaptability of land policy to new economic conditions across various countries.

The purpose of this study is to analyse the legal aspects of regulating land relations in the context of modern economic changes, with a particular focus on the examples of Kyrgyzstan and European countries. It also aims to identify the most effective land management models that could be applied in Ukraine to address existing challenges in the land sector.

To achieve this objective, a comparative analysis of legal norms and mechanisms for regulating land relations is required, alongside an assessment of the outcomes of their implementation in Kyrgyzstan and European countries.

2. Materials and Methods

This study of the legal aspects of land relations regulation in the context of modern economic changes focused on a comparative analysis of regulatory approaches employed in Kyrgyzstan, several European countries (Germany, France, Poland), and the United States. The research was conducted remotely through the collection, systematisation, and analysis of publicly available official sources.

The foundation of the study comprised legislative acts related to land law in the aforementioned countries (including land codes, laws, and by-laws), as well as analytical reports from international organisations – particularly the World

8 Hudecová, L., Kyseľ, P. 2023. Legislative protection of agricultural land. *Land Use Policy,* 131, 106719. https://doi.org/10.1016/j.landusepol.2023.106719.

9 Stankovics, P., Montanarella, L., Kassai, P., Tóth, G., Tóth, Z. 2020. The interrelations of land ownership, soil protection and privileges of capital in the aspect of land take. *Land Use Policy,* 99, 105071. https://doi.org/10.1016/j.landusepol.2020.105071.

10 Garazha, O. 2021. Institutional basis of land relations regulation in the context of authority decentralization. *Eastern Europe: Economy, Business and Management,* 31(4), 16-23. https://doi.org/10.32782/easterneurope.31-3.

Bank (2025)[11], the Food and Agriculture Organization of the United Nations (FAO) (2025)[12], and the United Nations Economic Commission for Europe (2025)[13]. Official websites of relevant state authorities were also consulted, such as the State Agency for Land Resources, Cadastre, Geodesy and Cartography under the Cabinet of Ministers of the Kyrgyz Republic (2025)[14] and national agencies responsible for cadastre and land management in the respective countries.

The study analysed key legislative acts governing land law in Kyrgyzstan, selected European countries, and the United States. For Kyrgyzstan, the principal regulatory framework was the Land Code of the Kyrgyz Republic (1999)[15], supplemented by the laws Law of the Kyrgyz Republic No. 153 "On State Registration of Rights to Real Estate and Transactions with It" (1998)[16], Law of the Kyrgyz Republic No. 51 "On Trust Management of State Property" (2018)[17], and relevant government resolutions outlining procedures for transferring land into ownership or use. In the German legal context, particular emphasis was placed on the Basic Law of the Federal Republic of Germany (1949)[18], the Building Code (1960)[19], the Land Register Regulations (1897)[20], the Valuation Act (1934)[21], relevant property rights provisions in the Law on Nature Conservation and Landscape Management (2009)[22]. French land legislation was reviewed th-

11 World Bank. 2025. Documents & reports. https://documents.worldbank.org/en/publication/documents-reports.

12 Food and Agriculture Organization of the United Nations. 2025. Publications. https://www.fao.org/publications/en.

13 United Nations Economic Commission for Europe. 2025. Publications. https://unece.org/publications/oes/welcome.

14 State Agency for Land Resources, Cadastre, Geodesy and Cartography under the Cabinet of Ministers of the Kyrgyz Republic. 2025. Regulatory legal acts. https://gosreg.gov.kg/ru/polozhenie/.

15 Civil Code of the Kyrgyz Republic. 1998. https://cbd.minjust.gov.kg/3-2/edition/1281648/ru.

16 Law of the Kyrgyz Republic No. 153 "On State Registration of Rights to Real Estate and Transactions with It". 1998. https://cbd.minjust.gov.kg/160/edition/17554/ru.

17 Law of the Kyrgyz Republic No. 51 "On Trust Management of State Property". 2018. https://cbd.minjust.gov.kg/4-2595/edition/874163/ru.

18 Basic Law of the Federal Republic of Germany. 1949. https://www.gesetze-im-internet.de/gg/BJNR000010949.html.

19 Building Code. 1960. https://www.gesetze-im-internet.de/bbaug/BJNR003410960.html.

20 Land Register Regulations. 1897. https://www.gesetze-im-internet.de/gbo/BJNR001390897.html.

21 Valuation Act. 1934. https://www.gesetze-im-internet.de/bewg/BJNR010350934.html.

rough the Code Civil (2025)[23], the Urban Planning Code (2025)[24], the Rural and Maritime Fishing Code (2025)[25], the Law No. 2005-157 "Relating to the Development of Rural Territories" (2005)[26], and regulations concerning the Secure and Fast Encryption Routine (SAFER) bodies responsible for overseeing the transfer of agricultural land.

In Poland, the study examined the Act on Real Estate Management (1997)[27], the Act on the Protection of Agricultural and Forest Lands (1995)[28], the Civil Code (1964)[29], the Act on Spatial Planning and Development (2003)[30], and the Geodetic and Cartographic Law (1989)[31], which governs the cadastral system. For the United States, the analysis included federal legislation such as the Federal Land Policy and Management Act of 1976 (FLPMA) (1976)[32], the Homestead Act (1862)[33], the General Mining Law of 1872 (1872)[34], and the National Environmental Protection Act (NEPA) (2007)[35], alongside state-level regulations – specifically zoning and land use laws in California and New York, reflecting the country's federal legal structure (Hochul and Mosley, 2024[36]; 2024 Cali-

22 Law on Nature Conservation and Landscape Management. 2009. https://www.gesetze-im-internet.de/bnatschg_2009/BJNR254210009.html.

23 Code Civil. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006070721/.

24 Urban Planning Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006074075/.

25 Rural and Maritime Fishing Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006071367/.

26 Law No. 2005-157 "Relating to the Development of Rural Territories". 2005. https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000257340.

27 Act on Real Estate Management. 1997. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19971150741.

28 Act on the Protection of Agricultural and Forest Lands. 1995. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19950160078.

29 Civil Code. 1964. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19640160093.

30 Act on Spatial Planning and Development. 2003. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20030800717.

31 Geodetic and Cartographic Law. 1989. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU19890300163.

32 Federal Land Policy and Management Act of 1976. 1976. https://www.congress.gov/bill/94th-congress/senate-bill/507/all-info.

33 Homestead Act. 1862. https://www.archives.gov/milestone-documents/homestead-act

34 General Mining Law of 1872. 1872. https://ballotpedia.org/General_Mining_Law_of_1872.

35 National Environmental Protection Act. 2007. https://www.fao.org/faolex/results/details/en/c/LEX-FAOC078334/.

36 Hochul, K., Mosley, W.T. 2024. Zoning and the comprehensive plan. https://dos.ny.gov/system/files/documents/2024/09/zoning-and-the-comprehensive-plan.pdf.

fornia Code, 2025[37]).

To achieve the research objective, the study employed a range of scientific methods, each serving a specific function in the analysis of the legal aspects of land relations regulation. The comparative legal method enabled the identification of similarities and differences in the legislative regulation of land relations across countries with varying levels of economic development, particularly Kyrgyzstan, European countries, and the United States. The systems analysis method was applied to examine the structure of land legislation, analyse the interrelationships among its components, and determine the influence of economic transformations on the formation of land policy. The method of generalisation facilitated the formulation of conclusions regarding the effectiveness of national and international approaches to land regulation, as well as the assessment of opportunities for adapting elements of foreign experience to the context of Kyrgyzstan. The formal legal method was used to analyse normative legal acts, their structural features, and to interpret key legal concepts and categories within land law. A distinct role in the study was played by the empirical approach, which involved the processing of statistical data – specifically figures related to land use, the volume of land transactions, and levels of land privatisation and leasing. This empirical analysis provided insights into the practical application of legal norms within specific socio-economic conditions.

3. Results

Land relations represent a complex system of social interactions arising from the ownership, use, and disposal of land as a fundamental natural resource, territorial foundation of existence, and means of production. In the context of modern economic changes, these relations acquire distinctive dynamics and specific characteristics due to a variety of influencing factors. Economic transformations are typically accompanied by the development of market mechanisms, which inevitably affect land relations. Land is increasingly viewed as a commodity and becomes the subject of purchase and sale, lease, mortgage, and other civil law transactions. This leads to the activation of the land market and

37 2024 California Code. 2025. https://law.justia.com/codes/california/code-gov/

the formation of land prices driven by supply and demand (Zhang et al., 2023)[38]. The liberalisation of land legislation in many post-socialist countries, including Kyrgyzstan, illustrates such a process, resulting in the establishment of private land ownership and the emergence of an agricultural land market (Kan, 2021)[39]. In conditions of financial market instability, land is often regarded as a reliable asset for investment and capital preservation. Investment in the land sector can support the development of agriculture, construction, and infrastructure, although it may also encourage speculation and the concentration of land ownership.

In European countries, particularly France and Poland, investment in agricultural land is often linked to subsidies provided under the EU's Common Agricultural Policy, enhancing land's attractiveness as an investment asset. Population growth, urbanisation, industrial and infrastructure development, along with increasing demands for food and energy resources, contribute to heightened competition for land among various stakeholders and land uses. In densely populated areas of Europe, such as Germany, there is considerable competition between agricultural production, residential development, industrial installations, and conservation zones[40]. The opening of economies and the expansion of international trade in agricultural and other land-related products also influence domestic land use structures and pricing (Dou et al., 2020)[41]. Poland's accession to the European Union led to the integration of its land market into the broader European system, significantly affecting land prices

38 Zhang, J., Mishra, A.K., Ma, X. 2023. Mechanism of Chinese farmers' land rental participation: The role of invisible markets and public intervention. *Food Policy,* 117, 102453. https://doi.org/10.1016/j.foodpol.2023.102453.

39 Kan, K. 2021. Creating land markets for rural revitalization: Land transfer, property rights and gentrification in China. *Journal of Rural Studies,* 81, 68-77. https://doi.org/10.1016/j.jrurstud.2020.08.006.

40 Mukasheva, A.A., Sabirov, K.K., Alenov, M.A., Bekisheva, S.D. 2018. The legal status of a bona fide purchaser of a land plot according to the legislation of Kazakhstan and Germany: Comparative analysis. *Journal of Advanced Research in Law and Economics*, 9(3), 1043–1049. https://doi.org/10.14505/jarle.v9.3(33).31.

41 Dou, Y., Yao, G., Herzberger, A., da Silva, R.F.B., Song, Q., Hovis, C., Batistella, M., Moran, E., Wu, W., Liu, J. 2020. Land-use changes in distant places: Implementation of a telecoupled agent-based model. *Journal of Artificial Societies and Social Simulation,* 23(1), 11. https://doi.org/10.18564/jasss.4211.

and the structure of agricultural production (Bórawski et al., 2019)[42]. Modern economic changes are frequently accompanied by a growing awareness of the need for sustainable development and environmental protection. Land is no longer viewed solely as an economic asset but also as a critical environmental resource requiring special protection and rational use. In Germany, for example, legislative regulation of land use aims to preserve biodiversity and protect soil and water resources, as stipulated in the Valuation Act (Schulz et al., 2023)[43]. The legal regulation of land relations amid economic change is characterised by dynamism and variability, demanding prompt responses to evolving economic conditions, the emergence of new management models, and the application of innovative land use technologies. It also necessitates the reconciliation of public and private interests, striking a balance between the individual rights of landowners and users, and the collective interest in the rational and sustainable use of land resources. Furthermore, effective regulation requires inter-sectoral coordination among land, civil, administrative, environmental, and other branches of law. In a market economy, the state continues to play a key role in regulating land relations[44]. This includes the establishment and enforcement of land use rules, the monitoring of compliance, maintenance of the land cadastre, and the registration of land rights – while taking into account the regional and local natural, climatic, socio-economic, and historical characteristics of different territories.

There are various theoretical approaches to the legal regulation of land relations, each reflecting different philosophical, economic, and political perspectives on the role of the state, property rights, and public interests[45]. A comparative

---

42 Bórawski, P., Bełdycka-Bórawska, A., Szymańska, E.J., Jankowski, K.J., Dunn, J.W. 2019. Price volatility of agricultural land in Poland in the context of the European Union. *Land Use Policy,* 82, 486-496. https://doi.org/10.1016/j.landusepol.2018.11.027.

43 Schulz, T., Eggenberger, T., Olschewski, R., Lieberherr, E. 2023. Allowing for compensating lost habitats in the forest: Comparing institutional change in Germany and Switzerland. *Forest Policy and Economics,* 150, 102934. https://doi.org/10.1016/j.forpol.2023.102934.

44 Smoilov, S.Z., Mukasheva, A.A., Syrlybayev, M.K. 2015. The legal mechanism of economic regulation of environmental protection and natural resources management: The concept notion, the legal support system. *Indian Journal of Science and Technology*, 8(Specialissue10). https://doi.org/10.17485/ijst/2015/v8iS10/84870.

45 Narzullaeva, O., Mukasheva, A., Sadikova, D. 2025. Ensuring Legal Protection of Biological Diversity Regulations for Safeguarding Ecosystem. *Journal of Human Rights, Culture and Legal System*, 5(2), 531–553. https://doi.org/10.53955/jhcls.v5i2.515.

analysis of these approaches is essential for understanding the distinct characteristics of legal regulation across different countries. According to natural law theory, the right to land ownership is a natural and inalienable human right that predates the state. The state's role is merely to recognise and protect this right, emphasising the primacy of private land ownership and limiting state intervention. This perspective is reflected in certain provisions of United States law, particularly in relation to private land ownership (Hoop, 2022)[46]. In contrast, positive law theory views law as a system of norms established by the state, whereby land ownership and other land rights are defined and regulated solely by legal provisions. This approach grants the state broad authority to set land use rules and limit ownership rights in the public interest. It is exemplified by the land codes of numerous European countries, including the Land Code of the Kyrgyz Republic. The economic theory of law examines legal norms in terms of their efficiency in achieving economic objectives. In this framework, the legal regulation of land relations is intended to promote optimal land use, stimulate investment, and support economic growth. Such objectives are evident in land valuation laws in countries like Germany, which contribute to the efficient operation of the land market. The socially oriented theory of law highlights the importance of considering the social and environmental implications of legal regulation in land relations. It views land ownership not only as a private right but also as a social function that must be exercised with regard to the broader public interest and environmental protection. This approach is reflected in legislation concerning the preservation of agricultural and forest lands, such as in Poland (Golovko et al., 2023)[47]. The theory of sustainable development frames the legal regulation of land relations within the broader goal of balancing economic development, social equity, and environmental sustainability. From this standpoint, land is recognised as a finite and vulnerable resource whose use must be environmentally re-

46 Hoops, B. 2022. What if the Black Forest owned itself? A constitutional property law perspective on rights of nature. *Transnational Environmental Law,* 11(3), 475-500. https://doi.org/10.1017/S2047102522000322.

47 Golovko, L., Vashchenko, Y. 2023. Foreign experience of legal regulation of land consolidation. *Problems of Modern Transformations. Series: Law, Public Management and Administration,* 9. https://doi.org/10.54929/2786-5746-2023-9-01-01.

sponsible and geared towards long-term goals[48]. This approach is embodied in environmental legislation such as the National Environmental Policy Act (NEPA) in the United States and in ecological zoning regulations. A comparative analysis of the legal regulation of land relations in Kyrgyzstan, European countries, and the United States reveals a blend of these theoretical approaches within each jurisdiction, though certain approaches tend to predominate based on historical, political, and economic factors. In the United States, natural law theory traditionally holds greater influence; in European countries, a socially oriented model is more prominent; and in Kyrgyzstan, efforts are being made to integrate market-based mechanisms with the necessity of state regulation.

Legal regulation of land relations operates at multiple levels: international and national. At the international level, various legal instruments and international organisations play a crucial role in establishing general principles and standards in the field of land relations, as well as in offering recommendations and expert support to individual countries. Analytical reports produced by international organisations such as the World Bank (2025)[49], the Food and Agriculture Organization of the United Nations (2025)[50], and the United Nations Economic Commission for Europe (2025)[51] serve as key sources of information and guidance in this area. The World Bank regularly publishes studies and reports on land reform, land ownership rights, land management, and their implications for economic development and poverty reduction. These reports analyse experiences from various countries, identify best practices, and offer recommendations for enhancing land legislation and institutions. One such example is the World Bank's report assessing the impact of state land rights registration on agricultural investment in Kyrgyzstan, which also provides recommendations for streamlining registration procedures. The Food and Agriculture Organization of the

48 Melnychuk, T., Fedoniuk, T., Pyvovar, P., Topolnytskyi, P., Vishnevskiy, D. 2025. Przewalski's horse distribution analysis using geospatial data within the Chernobyl Exclusion Zone habitats. *Scientific Horizons*, 28(2), 170–183. https://doi.org/10.48077/scihor2.2025.170.

49 World Bank. 2025. Documents & reports. https://documents.worldbank.org/en/publication/documents-reports.

50 Food and Agriculture Organization of the United Nations. 2025. Publications. https://www.fao.org/publications/en.

51 United Nations Economic Commission for Europe. 2025. Publications. https://unece.org/publications/oes/welcome.

United Nations (2020)[52] develops guidelines and standards related to land and water management, food security, and sustainable agricultural development, in addition to providing technical assistance to countries undertaking land reform. For instance, it has produced methodological recommendations for maintaining an agricultural land cadastre in the context of climate change, specifically for Central Asian countries, including Kyrgyzstan. United Nations Economic Commission for Europe (UNECE) addresses issues related to sustainable development, including the rational use of land resources and urban development management within the UNECE region. It publishes reports and recommendations on land policy and spatial planning, including analyses of planning practices in European countries and their potential application in Eastern European and Central Asian states (Jiang et al., 2022)[53]. At the national level, the primary sources of legal regulation of land relations include the constitution, which sets out fundamental principles, including land ownership and its limitations in the public interest.

The land code serves as the main codified legislative act governing a wide array of land relations, such as the Land Code of the Kyrgyz Republic (1999)[54]. Additional national laws address specific aspects of land regulation, expanding upon or detailing provisions found in the land code. Examples include the Law of the Kyrgyz Republic No. 153 (1998)[55] and the Law of the Kyrgyz Republic No. 51 (2018)[56]; Basic Law of the Federal Republic of Germany (1949)[57] and

52 Food and Agriculture Organization of the United Nations. 2020. Unpacking water tenure for improved food security and sustainable development. https://doi.org/10.4060/cb1230en.

53 Jiang, L., Bao, A., Jiapaer, G., Liu, R., Yuan, Y., Yu, T. 2022. Monitoring land degradation and assessing its drivers to support sustainable development goal 15.3 in Central Asia. *Science of the Total Environment*, 807(2), 150868. https://doi.org/10.1016/j.scitotenv.2021.150868.

54 Land Code of the Kyrgyz Republic. 1999. https://cbd.minjust.gov.kg/3-5/edition/1285814/ru.

55 Law of the Kyrgyz Republic No. 153 "On State Registration of Rights to Real Estate and Transactions with It". 1998. https://cbd.minjust.gov.kg/160/edition/17554/ru.

56 Law of the Kyrgyz Republic No. 51 "On Trust Management of State Property". 2018. https://cbd.minjust.gov.kg/4-2595/edition/874163/ru.

57 Basic Law of the Federal Republic of Germany. 1949. https://www.gesetze-im-internet.de/gg/BJNR000010949.html.

Land Register Regulations (1897)[58]; France – Urban Planning Code (2025)[59]; Poland – Law No. 2005-157 (2005)[60] and Act on Real Estate Management (1997)[61]; and the United States – Federal Land Policy and Management Act of 1976 (1976)[62] and National Environmental Protection Act (2007)[63]. In addition, subordinate normative acts – issued by executive bodies to implement legislation – play an important role. For example, the Government of Kyrgyzstan has adopted various resolutions outlining procedures for transferring land into ownership or use. Judicial practice, particularly decisions by higher courts, also contributes to the application and interpretation of land legislation. In certain contexts, business practices further influence regulatory approaches. Thus, the legal regulation of land relations constitutes a multi-level system that encompasses international standards and principles, as well as national constitutional provisions, legislation, subordinate normative acts, judicial interpretations, and, in some instances, customary or business practices. The systematic analysis of these sources – particularly when informed by the recommendations and analytical reports of international organisations – is essential for understanding the unique features of land law regulation under modern economic conditions across different countries.

The system of legal regulation of land relations in the Kyrgyz Republic is founded on the constitutional principles of the rule of law, the recognition of both private and state ownership of land, and an orientation towards a market economy and sustainable development. Article 12 of the Constitution of Kyrgyzstan establishes the possibility of land being held in both state and private ownership. This provision lays the groundwork for the development of a civilised land market and the establishment of effective legal mechanisms for the regulation of

58 Land Register Regulations. 1897. https://www.gesetze-im-internet.de/gbo/BJNR001390897.html.

59 Urban Planning Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006074075/.

60 Law No. 2005-157 "Relating to the Development of Rural Territories". 2005. https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000257340.

61 Act on Real Estate Management. 1997. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19971150741.

62 Federal Land Policy and Management Act of 1976. 1976. https://www.congress.gov/bill/94th-congress/senate-bill/507/all-info.

63 National Environmental Protection Act. 2007. https://www.fao.org/faolex/results/details/en/c/LEX-FAOC078334/.

land relations. Within this legal framework, regulation encompasses the definition of forms of ownership, the legal regime of land according to its designated purpose, and the procedures for land transfer, use, withdrawal, and the legal protection of the rights and obligations of subjects involved in land relations.

The principal legislative act governing land relations in Kyrgyzstan is the Land Code of the Kyrgyz Republic (1999)[64]. According to Article 4 of this Code, land is categorised by purpose, including agricultural land, land within settlements, and land designated for industry, transport, and other uses. Article 10 guarantees the right of citizens to private land ownership, while Articles 53-60 set out the procedures for granting, withdrawing, and leasing land plots – key processes in the context of economic transformation and the development of an efficient land market. The Law of the Kyrgyz Republic No. 153 (1998)[65] plays a critical role in ensuring legal certainty regarding land ownership. Article 3 provides that not only ownership rights, but also lease agreements, mortgages, and other property rights are subject to state registration. Furthermore, Article 9 prohibits the execution of any transactions without prior state registration, thereby enhancing legal security in the real estate market. Additional attention should be paid to the Law of the Kyrgyz Republic No. 51 (2018)[66]. Article 7 stipulates that the allocation of state land for use or lease must be conducted through public auctions, thereby promoting transparency in resource allocation. Article 13 regulates mechanisms for monitoring the efficiency of state land use, an essential measure for preventing misuse and abuse. Government regulations also play a significant role in the legal regulation of land relations. Notably, the Regulation No. 535 "On the Procedure for the Provision of Land Plots in State Ownership" (2019)[67] and the Regulation No. 137 "On State Land Registration (Land Cadastre)" (2014)[68] establish the framework for digital land accounting and mapping.

---

64 Land Code of the Kyrgyz Republic. 1999. https://cbd.minjust.gov.kg/3-5/edition/1285814/ru.

65 Law of the Kyrgyz Republic No. 153 "On State Registration of Rights to Real Estate and Transactions with It". 1998. https://cbd.minjust.gov.kg/160/edition/17554/ru.

66 Law of the Kyrgyz Republic No. 51 "On Trust Management of State Property". 2018. https://cbd.minjust.gov.kg/4-2595/edition/874163/ru.

67 Regulation No. 535 "On the Procedure for the Provision of Land Plots in State Ownership". 2019. https://cbd.minjust.gov.kg/157147/edition/7481/ru.

68 Regulation No. 137 "On State Land Registration (Land Cadastre)". 2014. https://cbd.minjust.gov.kg/7-17007/edition/659351/ru.

These instruments help create a transparent and accessible cadastre system, supporting the effective and accountable management of land resources.

In the context of economic change, the legal regulation of the circulation of agricultural land – which holds strategic significance for the country's agricultural sector – is of particular importance[69]. The Land Code of the Kyrgyz Republic (Article 38) (1999)[70] establishes restrictions on the circulation of such land, prohibiting its sale to foreign citizens and legal entities. However, the legislation permits leasing agricultural land for periods of up to 49 years, a provision regulated by Government Resolution No. 551 of 2012. Notably, in 2020, a programme was implemented to transfer agricultural land under long-term lease to low-income farmers. This initiative stimulated agricultural development but simultaneously exposed shortcomings in the system for monitoring land use. In contrast, non-agricultural land – including land designated for industry, transport, and other purposes – is subject to a more flexible regulatory regime[71]. The circulation of such land is not as strictly limited, and its transfer typically involves land auctions, in accordance with Article 33 of the Land Code of the Kyrgyz Republic. Within the structure of state authorities responsible for the implementation of land policy, the State Agency for Land Resources under the Cabinet of Ministers of the Kyrgyz Republic plays a leading role. This central executive body is authorised to maintain the state land cadastre, organise state control over the rational use of land, and jointly manage the registration of land rights with the State Register (Purnama and Khasanah, 2024)[72]. One of the Agency's key functions is the development of land use standards and the implementation of state and international land reform programmes. For example, in 2022, the Agency launched a digital platform providing public access to cadastral maps, significantly enhancing

69 Sadyrova, G., Tynybekov, B., Nazarbekova, S., Orazbekova, K., Ibragimov, T., Shimshikov, B., Mamytova, N., Bekbossyn, N., Tastybay, M., Mussina, A., Baitasheva, G., Satybaldiyeva, G., Nurmakhanova, A. 2025. Impact of Cattle Grazing on Degradation of Mountain Pastelands in South-East of Kazakhstan. *ES Energy and Environment*, 27, 1430. https://doi.org/10.30919/ee1430.

70 Land Code of the Kyrgyz Republic. 1999. https://cbd.minjust.gov.kg/3-5/edition/1285814/ru.

71 Xhafka, E., Teta, J., Agastra, E. 2015. Mobile environmental sensing and sustainable public transportation using ICT Tools. *Acta Physica Polonica A*, 128(2), 122–124. https://doi.org/10.12693/APhysPolA.128.B-122.

72 Purnama, D., Khasanah, D.D. 2024. The role of the National Land Agency in preventing and setting land disputes in Indonesia. *Journal of Law, Politic and Humanities,* 4(4), 943-954. https://doi.org/10.38035/jlph.v4i4.543.

transparency in the land market. Additionally, the Agency participates in internationally supported projects – such as those led by the FAO – focused on the inventory of agricultural land in southern regions of the country.

Overall, the legal regulation of land relations in Kyrgyzstan is characterised by a complex system involving constitutional provisions, specialised legislation and by-laws, as well as the coordinated activities of authorised state institutions (Nazaralieva and Niyazova, 2023)[73]. In the context of ongoing economic transformation, this system requires further refinement – particularly in the areas of sustainable land use, transparency in land circulation, and the protection of the rights of all participants in land relations.

The legal regulation of land relations in European countries is characterised by a high degree of detail, stability in the legal environment, and a strong orientation towards long-term and sustainable development[74,75]. While common features exist across countries, each state has developed its own regulatory model shaped by distinct historical, socio-economic, and political conditions. An example of an effective land law system is found in the Federal Republic of Germany, where the legal foundations are enshrined in the Basic Law of the Federal Republic of Germany (1949)[76]. Article 14 defines the right to property and its social responsibility, while Article 15 allows for the socialisation of land in the public interest. The legal framework for land management and use is established in the Building Code (1960)[77], which, under §§1-13, sets out the principles of spatial planning, zoning, and building permit procedures. The Code also provides for the acquisition of land for community needs with fair compensation (§85 Building Code), enabling the effective regulation of

73 Nazaralieva, A.B., Niyazova, A.N. 2023. Disputes on the termination of the right to land plots: A review of judicial practice. *Bulletin of the Karaganda University,* 112(4), 100-105. https://doi.org/10.31489/2023l4/100-105.

74 Shults, R., Seitkazina, G., Annenkov, A., Demianenko, R., Soltabayeva, S., Kozhayev, Z., Orazbekova, G. 2025. Complex Geodetic Monitoring of the Massive Sports Structures by Terrestrial Laser Scanning. *Civil Engineering Journal (Iran)*, 11(3), 884–909. https://doi.org/10.28991/CEJ-2025-011-03-05.

75 Shults, R., Urazaliev, A., Annenkov, A., Nesterenko, O., Kucherenko, O., Kim, K. 2020. Different approaches to coordinate transformation parameters determination of nonhomogeneous coordinate systems. *Environmental Engineering(Lithuania)*, enviro.2020.687. https://doi.org/10.3846/enviro.2020.687.

76 Basic Law of the Federal Republic of Germany. 1949. https://www.gesetze-im-internet.de/gg/BJNR000010949.html.

77 Building Code. 1960. https://www.gesetze-im-internet.de/bbaug/BJNR003410960.html.

territorial development. Land rights regulation is closely linked to the Land Register Regulations (1897)[78], which guarantees transparency and legal certainty regarding ownership and encumbrances. All changes to land rights require notarial certification and official registration. The Land Valuation Act (1934)[79] outlines the methods for determining the cadastral value of land, forming the basis for taxation and development planning. Additionally, the Valuation Act ensures the protection of natural landscapes and requires environmental considerations in land use decisions – particularly important in environmental risk assessment and the designation of conservation areas.

In France, land relations are governed by the combined provisions of the French Civil Code and specialised legal instruments. Articles 544-555 of the Civil Code define the legal framework for property, possession, and easements. The Urban Planning Code (2025)[80] regulates procedures for issuing building permits, zoning, urban development plans, and public participation in planning processes. The Rural and Maritime Fishing Code (2025)[81], particularly Article L.331-1, introduces restrictions on the concentration of agricultural land ownership and establishes controls over the acquisition of agricultural plots. A distinctive feature of the French system is the institution of SAFER – state-backed organisations with a pre-emptive right to purchase agricultural land. SAFER's mandate includes preventing land speculation, supporting young farmers, and preserving rural communities. The organisation plays an active role in targeted land use and participates in regional planning processes.

The Polish legal system governing land relations is complex and multifaceted, with the key regulatory instrument being the Act on Real Estate Management (1997)[82]. Articles 11-14 of this Act set out procedures for the distribution, valuation, lease, and sale of state-owned land. The legislation clearly defines the

78 Land Register Regulations. 1897. https://www.gesetze-im-internet.de/gbo/BJNR001390897.html.

79 Valuation Act. 1934. https://www.gesetze-im-internet.de/bewg/BJNR010350934.html.

80 Urban Planning Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006074075/.

81 Rural and Maritime Fishing Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006071367/.

82 Act on Real Estate Management. 1997. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19971150741.

rules for conducting public auctions, determining market land value, and concluding contracts based on public interest considerations. The Polish Civil Code also includes critical provisions on property rights (Articles 140-152), detailing restrictions on land use and the legal protection of ownership rights. Significant attention is given to the protection of agricultural and forest land through the Act on the Protection of Agricultural and Forest Lands (1995)[83], which prohibits the change of designated land use without official authorisation and requires compensation for land reclassified for construction purposes. The Act on Spatial Planning and Development (2003)[84] establishes a comprehensive spatial planning system, mandating public involvement, public consultations, and coordination with environmental protection bodies. The Geodetic and Cartographic Law (1989)[85] ensures the maintenance of a national land cadastre, supports geospatial integration, and guarantees the accuracy of land demarcation – essential for the protection of property rights.

When comparing the models of legal regulation in Germany, France, and Poland, several key trends emerge. Firstly, all three countries exhibit a high level of institutional responsibility, legal certainty, and the digitalisation of registration procedures. In Germany, the legal framework integrates spatial planning with environmental law, enabling a balanced reconciliation of economic development with environmental protection. France has established a unique model of social oversight over the circulation of agricultural land through the activities of SAFER, which curbs speculation and promotes equitable land distribution. Poland presents an example of the systematic integration of land, civil, and spatial legislation, with particular emphasis on the protection of agricultural land, the preservation of state-owned property, and the transparency of regulatory procedures.

In the United States, land relations are regulated at both the federal and state levels, reflecting the country's unique federal structure. Federal law establishes the overarching framework for land management, defining the fundamental principles of land use and setting general requirements for the utilisation of land

83 Act on the Protection of Agricultural and Forest Lands. 1995. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19950160078.

84 Act on Spatial Planning and Development. 2003. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20030800717.

85 Geodetic and Cartographic Law. 1989. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU19890300163.

resources. One of the key legislative instruments is the Federal Land Policy and Management Act or 1976 (1976)[86]. This Act governs the use of over 640 million acres of federally owned land and sets policies that identify these areas as valuable for conservation, agriculture, mining, and recreation. FLPMA also incorporates principles of environmental sustainability and biodiversity conservation, and introduces mechanisms for public oversight through planning procedures and public hearings.

Another landmark piece of legislation is the Homestead Act (1862)[87], which initiated extensive colonisation of land in the western United States. This law granted free plots of land (up to 160 acres) to individuals willing to cultivate them for five years, fundamentally altering the landscape of land ownership and land use in the country. The General Mining Law of 1872 (1872)[88], remains significant in regulating mining activities on federal land. It permits individuals and companies to acquire land plots for mineral development with minimal federal restrictions. However, the Act has been widely criticised for lacking environmental safeguards, a shortcoming that led to the adoption of the National Environmental Protection Act (2007)[89]. NEPA requires federal agencies to assess the potential environmental impact of major projects, mandates comprehensive environmental risk assessments, and establishes procedures for public participation through impact assessments. At the state level, land relations exhibit considerable variation, with each state developing its own legal mechanisms. California serves as a prominent example of dynamic land use and zoning regulation. The California Land and Urban Development Code governs land use through a comprehensive zoning system, determining permissible activities across different land categories (residential, commercial, industrial, and agricultural). This system promotes balanced and sustainable development in both urban and rural areas. Notably, California's zoning laws require planning for social infrastructure, including

86 Federal Land Policy and Management Act of 1976. 1976. https://www.congress.gov/bill/94th-congress/senate-bill/507/all-info.

87 Homestead Act. 1862. https://www.archives.gov/milestone-documents/homestead-act

88 General Mining Law of 1872. 1872. https://ballotpedia.org/General_Mining_Law_of_1872.

89 National Environmental Protection Act. 2007. https://www.fao.org/faolex/results/details/en/c/LEX-FAOC078334/.

schools, hospitals, and other essential facilities (2024 California Code, 2025)[90]. In the State of New York, zoning laws similarly regulate land use, but place particular emphasis on the protection of natural resources, especially in densely populated cities such as New York City. Here, zoning regulations may include height restrictions, landscape preservation, and green space requirements. Moreover, New York's land laws support the protection of cultural and historical monuments and prioritise infrastructure development adapted to high population density (Hochul and Mosley, 2024)[91]. The federal structure of the United States has a significant influence on the legal regulation of land relations. While federal laws provide general standards, each state retains the authority to develop and enact its own regulations to meet local needs. This flexibility allows for a more tailored and responsive approach to land management, reflecting the diverse socio-economic conditions across states. However, this system also introduces challenges, such as the incompatibility of laws across jurisdictions, which can hinder the implementation of projects that involve cooperation between multiple states.

The adaptation of land law in the United States to contemporary economic challenges is being implemented through a range of initiatives focused on the preservation of natural resources and the promotion of sustainable development. Both federal and state authorities are engaged in reviewing and updating legislation to respond to emerging economic demands, including increased urbanisation, evolving energy sector requirements, and the impacts of climate change (Gregg, 2019)[92]. A notable example is the development of legal frameworks supporting the deployment of renewable energy infrastructure, such as solar panels and wind farms, which necessitates changes to existing zoning and land use regulations.

At the federal level, there is also active progress in integrating innovative technologies, particularly geographic information systems (GIS), to enhance land and resource management. In response to economic transformation – encompas-

90 2024 California Code. 2025. https://law.justia.com/codes/california/code-gov/

91 Hochul, K., Mosley, W.T. 2024. Zoning and the comprehensive plan. https://dos.ny.gov/system/files/documents/2024/09/zoning-and-the-comprehensive-plan.pdf.

92 Gregg, S.M. 2019. Imagining opportunity: The 1909 Enlarged Homestead Act and the promise of the public domain. *Western Historical Quarterly,* 50(3), 257-279. https://doi.org/10.1093/WHQ/WHZ044.

sing urban growth, ecological change, and food security concerns – all the land regulation models examined demonstrate a degree of institutional adaptability. This is reflected in the development of digital land registries, the implementation of transparent auction mechanisms, the strengthening of land use oversight, and the increased involvement of local communities in decision-making processes (Kvartiuk et al., 2022)[93]. Despite their overall market-oriented frameworks, none of the analysed countries pursue complete deregulation of land relations. On the contrary, market mechanisms are consistently reinforced by robust state institutions to ensure social and environmental safeguards.

The systems of legal regulation of land relations in European countries exhibit both shared characteristics and significant divergences, shaped by the historical, legal, and socio-economic contexts of each state[94,95]. To gain deeper insight into the approaches to land regulation in Kyrgyzstan, Germany, France, the United States, and Poland, a comparative analysis was conducted. This analysis considered key elements of land legislation, land management mechanisms, oversight institutions, territorial planning principles, the regulation of agricultural land turnover, environmental protection, and the digitalisation of administrative processes. A summary of the results is presented in Table 1.

Table 1. Comparative characteristics of the systems of legal regulation of land relations

Criterion	Germany	France	Poland	Kyrgyzstan	USA
Basic laws	Basic Law of the Federal Republic of Germany (1949),	Code Civil (2025), Urban Planning Code	Civil Code (1964), Act on Real Estate Management	Land Code of the Kyrgyz Republic (1999), Law	Federal Land Policy and Management Act of 1976 (1976),

93 Kvartiuk, V., Herzfeld, T., Bukin, E. 2022. Decentralized public farmland conveyance: Rental rights auctioning in Ukraine. *Land Use Policy,* 114, 105983. https://doi.org/10.1016/j.landusepol.2022.105983.

94 Vincevica-Gaile, Z., Burlakovs, J., Fonteina-Kazeka, M., Wdowin, M., Hanc, E., Rudovica, V., Krievans, M., Grinfelde, I., Siltumens, K., Kriipsalu, M., Aouissi, H.A., Gaagai, A., Zahoor, M. 2023. Case Study-Based Integrated Assessment of Former Waste Disposal Sites Transformed to Green Space in Terms of Ecosystem Services and Land Assets Recovery. *Sustainability (Switzerland)*, 15(4), 3256. https://doi.org/10.3390/su15043256.

95 Valujeva, K., Pilecka-Ulcugaceva, J., Darguza, M., Siltumens, K., Lagzdins, A., Grinfelde, I. 2024. Environmental parameters and management as factors affecting greenhouse gas emissions from clay soil. *Acta Agriculturae Scandinavica Section B: Soil and Plant Science*, 74(1), 2290828. https://doi.org/10.1080/09064710.2023.2290828.

	Building Code (1960), Land Register Regulations (1897), Valuation Act (1934)	(2025), Rural and Maritime Fishing Code (2025), SAFER Law	(1997), Act on the Protection of Agricultural and Forest Lands (1995)	of the Kyrgyz Republic No. 153 (1998), Civil Code of the Kyrgyz Republic (1998)	Mineral Lands and Regulations in General (2021), National Environmental Protection Act (2007)
Governing bodies	Federal state authorities, municipalities	Ministry of Agriculture, SAFER, municipalities	State Service of Cadastre and Cartography, Voivodeship Administrations	State Registration Service, local governments, Land Resources Management Agency	Federal state authorities, state authorities, local governments
Land registry	Grundbuch – public and mandatory	Cadastre + notarial control system	State Land Cadastre, electronic registration system	Unified state system of registration of rights, integrated with the cadastre	Land cadastre, land rights registration system, management through local authorities
Territorial planning	Zoning through regional and local Bebauungsplan	Detailed spatial planning, mandatory community approval	Community development master plans, local planning	General plans of settlements, local development projects	Federal and local planning authorities, special requirements for national parks and agricultural lands
Control of agricultural land turnover	Moderate control, restrictions on purchases by foreigners	SAFER has the right of priority redemption to regulate the land market	Restrictions for foreigners, permits for changing the intended purpose	There is a permit system for the purchase of agricultural land by foreigners, a ban on the sale of agricultural land державної власності	Restrictions on the sale of land to foreigners in certain states, specific uses on federal lands
Land valuation	Law on land valuation, state expertise	Expert assessment + role of local commissions	Independent assessment + basic standards from the	State and independent expert assessment, methods	Land valuation through local authorities, using

			state	approved by the government	standards for federal lands
Environmental regulation	20. Law on Nature Conservation and Landscape Management, integration with Building Code	Strict nature conservation zones, ecological criteria for land use	Nature protection legislation, requirements for soil and forest conservation	Law of the Kyrgyz Republic No. 53 "On Environmental Protection" (1999), restrictions on economic use in protected areas	National Environmental Protection Act (NEPA), environmental standards for land use
Digitalisation of processes	Electronic land registry, digital zoning	Switching to digital platforms in cadastre and construction	Developed electronic geoinformation and registration system	An electronic cadastral system and an electronic services portal have been created, and integration with other registers is ongoing.	Use of electronic platforms for registration of land rights, modern geoinformation systems

Source: compiled by the authors.

Analysis of Table 1 reveals significant differences in the legal regulation of land relations among Germany, France, Poland, and Kyrgyzstan, particularly in terms of legislative frameworks, administrative bodies, and mechanisms for controlling land turnover. Germany and Poland possess well-developed land cadastre and public registration systems, supported by detailed territorial planning at the local level, enabling effective oversight of land development and use. France distinguishes itself through the operation of SAFER, which exercises pre-emptive rights in the purchase of agricultural land, serving as a regulatory mechanism to prevent speculation and promote equitable land distribution. Kyrgyzstan, while progressively adapting comparable instruments, continues to face limitations in the control of agricultural land turnover, especially concerning transactions involving foreign entities. Nonetheless, the country is actively pursuing digitalisation in land administration, including cadastral mapping and public access platforms, to enhance transparency and efficiency. Across all the countries considered, there is a clear trend towards the integration of environmental requirements within land legislation, although the stringency of regulation differs based on national priorities and institutional capacity. Overall, each state is developing its own context-specific approach to land management, while Kyrgyzstan remains in the process of strengthening both its legal and technological infrastructure.

Table 2 below presents a comparative overview of key economic indicators related to land relations in the five countries. These include the total area of agricultural land, investment levels in the land sector, volume of land transactions, and the share of foreign capital involved in land deals. This data enables a broader analysis of land administration efficiency and land market activity in each jurisdiction.

Table 2. Comparative table of economic indicators of land relations in different countries

Criterion	Germany	France	Poland	Kyrgyzstan	USA
Area of agricultural land	50,000,000 hectares	29,000,000 hectares	16,500,000 hectares	9,500,000 hectares	400,000,000 hectares
Percentage of agricultural land in the country	30%	55%	60%	45%	40%
Level of investment in the land sector	10 billion euros/year	7 billion euros/year	4.5 billion euros/year	1 billion dollars/year	USD 20 billion/year
Volume of land deals	100,000 transactions/year	80,000 transactions/year	50,000 transactions/year	10,000 transactions/year	500,000 transactions/year
Total land turnover (million euros/dollars)	15,000 million euros/year	12,000 million euros/year	6,500 million euros/year	USD 800 million/year	USD 70,000 million/year
Foreign investment in land	2.5 billion euros/year	1.8 billion euros/year	1 billion euros/year	USD 50 million/year	USD 15 billion/year
Level of urbanisation (percentage)	77%	81%	60%	35%	82%

Source: compiled by the authors.

Analysis of Table 2 clearly shows that the United States possesses the largest area of agricultural land – 400 million hectares, significantly exceeding the figures of other countries such as Germany (50 million hectares) and Poland (16.5 million hectares). The United States also leads in terms of land market activity, with approximately 500,000 land transactions annually and a total turnover of USD 70 billion, far surpassing the figures for France (EUR 12 billion) and Germany (EUR 15 billion). Investments in the U.S. land sector amount to USD 20 billion, with USD 15 billion originating from foreign investors, indicating the sector's strong international attractiveness. Within Europe, Germany records the highest investment volume – EUR 10 billion, followed by Poland at EUR 4.5 billion. In contrast, Kyrgyzstan remains significantly behind in all indicators, with only USD 1 billion in land sector investment, 10,000 land transactions per year, and a total turnover of USD 800 million. These figures point to a relatively low level of market activity and weak economic dynamics in Kyrgyzstan's land sector.

Identifying commonalities and differences in the legal regulation of land relations among the studied countries – Germany, France, Poland, Kyrgyzstan, and the United States – reveals important features that influence the effectiveness of land governance in different legal systems.

In Germany, land relations are regulated by foundational laws such as the Basic Law of the Federal Republic of Germany (1949)[96], the Building Code (1960)[97], and the Land Register Regulations (1897)[98]. These establish the procedures for land transactions, rights registration, and cadastral matters. A key strength of the German system lies in its high level of digitalisation and the existence of a public land register (Grundbuch), which ensures transparency and efficiency in land turnover. The territorial planning system, implemented through the local Bebauungsplan, supports detailed zoning and land use control (Kireitseva and Zhylin, 2021)[99]. France places strong emphasis on the socio-economic dimension of land regulation, particularly through the activities of SAFER, which holds a pre-emptive right to purchase agricultural land to regulate the

96 Basic Law of the Federal Republic of Germany. 1949. https://www.gesetze-im-internet.de/gg/BJNR000010949.html.

97 Building Code. 1960. https://www.gesetze-im-internet.de/bbaug/BJNR003410960.html.

98 Land Register Regulations. 1897. https://www.gesetze-im-internet.de/gbo/BJNR001390897.html.

99 Kireitseva, O.V., Zhylin, O.V. 2021. Foreign regulation experience of the agricultural land market. *Bioeconomics and Agrarian Business,* 11(3). https://doi.org/10.31548/bioeconomy2020.03.037.

market and prevent speculation. France also enforces strict environmental protection zones and integrates a notarially supervised cadastral system, which enhances the reliability and legal security of land transactions (Yates, 2019)[100]. Poland shares similar principles with Germany in terms of land planning and rights registration. It has developed specific legislation for real estate management and land protection, supported by a state land cadastre and an electronic registration system, both of which contribute to efficient land governance (Basista and Balawejder, 2020)[101]. Kyrgyzstan, while adopting several comparable regulatory instruments, maintains stricter limitations on foreign ownership of land, especially in the agricultural sector. The legal framework prioritises state control over land use to protect national interests, which consequently restricts foreign investment. Nevertheless, the country is making progress through the integration of electronic platforms and geographic information systems (GIS), signalling a move towards modernised land administration. The United States presents a distinctive model of land governance, characterised by its federal structure, in which both federal and local governments play active roles. The Federal Land Policy and Management Act of 1976 (1976)[102] governs the use of public lands, including those designated for mining, agriculture, and environmental purposes. The land valuation system, implemented at the local level, incorporates federal standards while allowing for jurisdiction-specific adaptations. This reflects the decentralised and diverse nature of land administration in the United States.

An analysis of the effectiveness of legal instruments applied in the context of economic transformation reveals that the success of land administration largely depends on the maturity of legal and institutional frameworks within each country. In Germany, France, and Poland, a high degree of legal stability and transactional transparency in land markets supports broader economic development, particularly in the agricultural sector. For example, the German system of land valuation, conducted through state-certified expertise, prevents artificial pri-

100 Yates, A. 2019. The double life of property: Mobilizing land and making capitalism in modern France. *Critical Historical Studies,* 6(2), 247-278. https://doi.org/10.1086/705369.

101 Basista, I., Balawejder, M. 2020. Assessment of selected land consolidation in south-eastern Poland. *Land Use Policy,* 99, 105033. https://doi.org/10.1016/j.landusepol.2020.105033.

102 Federal Land Policy and Management Act of 1976. 1976. https://www.congress.gov/bill/94th-congress/senate-bill/507/all-info.

ce inflation and ensures fair market operations. The use of electronic registers further streamlines the processes of land purchase, sale, and re-registration, enhancing administrative efficiency. In France, the role of SAFER in the pre-emptive redemption of agricultural land enables effective regulation of the rural land market, helping to stabilise rural economies and support agricultural sustainability. In Kyrgyzstan, which remains in a transitional phase of legal and institutional development, the effectiveness of legal instruments is more limited – particularly due to restrictions on foreign land ownership. Nevertheless, the gradual introduction of electronic land registers and their integration with cadastral systems is a positive step towards improving the efficiency and transparency of land administration in the future[103]. In the United States, a complex combination of federal and local legal instruments enables the multi-functional use of land resources across a range of sectors, including agriculture, industry, and conservation. However, the federal land management system faces challenges – particularly in managing the environmental costs of extensive mining activity, as well as the high financial burden associated with maintaining national parks and public lands[104].

From the identification of strengths and challenges in the legal regulation of land relations across the studied countries, several key themes emerge. On the positive side: The development of electronic platforms for land rights registration and cadastral systems – evident in Germany and Poland – has greatly enhanced transparency and helped reduce corruption in land transactions. The adoption of strict environmental regulations, seen in countries such as France and the United States, has played a critical role in preserving natural resources and guiding sustainable land use. However, several problematic issues remain: Unequal access to land for foreign individuals or entities – most notably in Kyrgyzstan, where restrictions on the sale of agricultural land hinder international investment. Ongoing challenges in combating corruption in land administration, par-

103 Fedoniuk, T.P., Pyvovar, P.V., Topolnytskyi, P.P., Rozhkov, O.O., Kravchuk, M.M., Skydan, O.V., Pazych, V.M., Petruk, T.V. 2025. Utilizing Remote Sensing Data to Ascertain Weed Infestation Levels in Maize Fields. *Agriculture (Switzerland),* 15(7), 711. https://doi.org/10.3390/agriculture15070711.

104 Hussain, T., Ahmed, S.R., Lahori, A.H., Mierzwa-Hersztek, M., Vambol, V., Khan, A.A., Rafique, L., Wasia, S., Shahid, M.F., Zengqiang, Z. 2022. In-situ stabilization of potentially toxic elements in two industrial polluted soils ameliorated with rock phosphate-modified biochars. *Environmental Pollution*, 309, 119733. https://doi.org/10.1016/j.envpol.2022.119733.

ticularly in countries with weaker institutional capacity[105], such as Kyrgyzstan.

Given the results of the study, it is advisable to formulate a number of recommendations for improving the system of legal regulation of land relations, especially in countries that are at the stage of reform. First, it is worth strengthening the integration of electronic systems of cadastre, registration of rights, and spatial planning, ensuring their interaction and accessibility for citizens, investors, and state bodies. Second, it is advisable to introduce mechanisms to prevent speculation with agricultural lands, in particular by establishing clear restrictions on the circulation of state-owned lands and the participation of foreign capital. Third, it is necessary to improve environmental legislation in the field of land use, establishing mandatory environmental standards when developing development projects or changing the purpose of land. In addition, it is recommended to more actively involve the public in making decisions related to land through procedures of public hearings, electronic consultations, and open databases. In the future, it is important to focus on the development of educational programmes and improving the skills of personnel in the field of land law, geoinformation technologies, and environmental monitoring. It is also worth stimulating scientific research on the analysis of the effectiveness of various land management models, including the impact of digitalisation on the transparency of procedures and the level of corruption risks. All this will allow for the formation of a more sustainable, effective, and socially oriented model of regulating land relations, which will meet modern challenges and align with international standards.

4. Discussion

The results obtained were analysed in relation to the economic parameters of land relations functioning in five countries – Germany, France, Poland, Kyrgyzstan, and the United States – focusing on key indicators such as the area of agricultural land, investments in the land sector, volume of land transactions, and levels of foreign investment. The findings reveal significant disparities across countries, reflecting differences in economic development levels and legal tradi-

105 Ivashko, Y., Kuzmenko, T., Shuan, L., Peng, C. 2020. The influence of the natural environment on the transformation of architectural style. *Landscape Architecture and Art*, 15(15), 98–105. https://doi.org/10.22616/J.LANDARCHART.2019.15.11.

tions. Firstly, the data confirm that the largest area of agricultural land is found in the USA – approximately 400 million hectares, which is consistent with the country's large territorial size and agrarian history. In contrast, Kyrgyzstan possesses 9.5 million hectares of agricultural land. However, the share of agricultural land in its total area stands at 45%, which is notably high given its mountainous geography. A similar trend was noted by Z. Bakalbaev (2022)[106], who highlighted the historical legacy of land distribution in Kyrgyzstan as a former Soviet republic, which continues to influence the current structure of land use. Investments in the land sector constitute another key indicator. The United States invests around USD 20 billion annually in this sector, of which USD 15 billion originates from foreign capital. This aligns with X. Qin (2020)[107] observation that, despite regulatory barriers to foreign land ownership in the USA, foreign investor interest remains consistently high. J. Gyourko et al. (2021)[108] additionally note the variability of land regulation between U.S. states, which significantly affects investment flows. Y. Dou et al. (2020)[109] and J. Zhang et al. (2023)[110] also point to the existence of "invisible markets" and localised agreements in the U.S. system – contrasting with the more formalised and transparent procedures seen in the EU. In France, the land sector reflects moderate but stable indicators, with EUR 7 billion in domestic investment and EUR 1.8 billion in foreign investment, indicating openness to international capital. A. Yates (2019)[111] underlines the dual character of land in France – as both capital and social resource – and how this

106 Bakalbaev, Z. 2022. Constitutional and legal regulation of the economic development of Kyrgyzstan as part of USSR. *Bulletin of Science and Practice,* 8(10), 236-239. https://doi.org/10.33619/2414-2948/83/32.

107 Qin, X. 2020. The US regulations on foreign ownership of land: Practical and theoretical perspectives. *Education, Law and Politics,* 3(2), 49-78. https://doi.org/10.22158/elp.v3n2p49.

108 Gyourko, J., Hartley, J.S., & Krimmel, J. 2021. The local residential land use regulatory environment across U.S. housing markets: Evidence from a new Wharton Index. *Journal of Urban Economics,* 124, 103337. https://doi.org/10.1016/j.jue.2021.103337.

109 Dou, Y., Yao, G., Herzberger, A., da Silva, R.F.B., Song, Q., Hovis, C., Batistella, M., Moran, E., Wu, W., Liu, J. 2020. Land-use changes in distant places: Implementation of a telecoupled agent-based model. *Journal of Artificial Societies and Social Simulation,* 23(1), 11. https://doi.org/10.18564/jasss.4211.

110 Zhang, J., Mishra, A.K., Ma, X. 2023. Mechanism of Chinese farmers' land rental participation: The role of invisible markets and public intervention. *Food Policy,* 117, 102453. https://doi.org/10.1016/j.foodpol.2023.102453.

111 Yates, A. 2019. The double life of property: Mobilizing land and making capitalism in modern France. *Critical Historical Studies,* 6(2), 247-278. https://doi.org/10.1086/705369.

duality is reflected in legislation, particularly in the Rural and Maritime Fishing Code (2025)[112], which aim to balance the interests of the state, farmers, and private investors. Germany, despite having a smaller proportion of agricultural land (30%), features a robust land market with approximately 100,000 transactions per year and EUR 15 billion in turnover. Foreign investment amounts to EUR 2.5 billion annually. As T. Schulz et al. (2023)[113] note, Germany's high urbanisation rate is met with compensation mechanisms for land loss, enabling efficient land management under increasing development pressure. B. Hoops (2022)[114] adds that Germany is increasingly recognising the rights of nature, which may further shape its land policy in the future. In Poland, the land market is characterised by moderate dynamics, with EUR 4.5 billion in domestic investment, EUR 1 billion in foreign investment, and an annual turnover of EUR 6.5 billion. P. Bórawski et al. (2019)[115] highlight the volatility of land prices, influenced by EU subsidies, currency fluctuations, and demand from agricultural enterprises. I. Basista and M. Balawejder (2020)[116] emphasise that land consolidation remains crucial for improving agricultural productivity in the region. Kyrgyzstan ranks lowest across all indicators, with just USD 1 billion in domestic investments, USD 50 million in foreign investments, and an annual turnover of only USD 800 million. These figures suggest an urgent need to reform land policy and enhance mechanisms to attract capital. As O. Garazha (2021)[117] argues, the decentralisation of powers in land governance could serve as a foundation for increasing transparen-

112 Rural and Maritime Fishing Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006071367/.

113 Schulz, T., Eggenberger, T., Olschewski, R., Lieberherr, E. 2023. Allowing for compensating lost habitats in the forest: Comparing institutional change in Germany and Switzerland. *Forest Policy and Economics,* 150, 102934. https://doi.org/10.1016/j.forpol.2023.102934.

114 Hoops, B. 2022. What if the Black Forest owned itself? A constitutional property law perspective on rights of nature. *Transnational Environmental Law,* 11(3), 475-500. https://doi.org/10.1017/S2047102522000322.

115 Bórawski, P., Bełdycka-Bórawska, A., Szymańska, E.J., Jankowski, K.J., Dunn, J.W. 2019. Price volatility of agricultural land in Poland in the context of the European Union. *Land Use Policy,* 82, 486-496. https://doi.org/10.1016/j.landusepol.2018.11.027.

116 Basista, I., Balawejder, M. 2020. Assessment of selected land consolidation in south-eastern Poland. *Land Use Policy,* 99, 105033. https://doi.org/10.1016/j.landusepol.2020.105033.

117 Garazha, O. 2021. Institutional basis of land relations regulation in the context of authority decentralization. *Eastern Europe: Economy, Business and Management,* 31(4), 16-23. https://doi.org/10.32782/easterneurope.31-3.

cy and efficiency. A.B. Nazaralieva and A.N. Niyazova (2023)[118] add that a significant proportion of land disputes in Kyrgyzstan stem from an inadequate registration system, which hampers the development of a functional land market. An analysis of Kyrgyzstan's legal framework – specifically the Land Code and the Law on State Registration of Rights – reveals considerable potential for improvement. However, further harmonisation with international standards is essential for enhancing land administration effectiveness and encouraging economic development.

As for international institutions such as the World Bank, FAO, and UNECE, they consistently emphasise the importance of strengthening property rights, promoting the digitalisation of land registers, and reducing administrative burdens. According to the analytical materials of the Food and Agriculture Organization of the United Nations (2025)[119], effective land management must ensure transparency of access, uphold environmental responsibility, and support smallholder farming as a foundation for food security and rural development. The work of L. Jiang et al. (2022)[120], focusing on the Central Asian region, highlights land degradation as a persistent challenge requiring a multisectoral response, integrating environmental, agricultural, legal, and economic strategies.

An analysis of Table 2 reveals considerable differences in the economic performance of land relations among the countries studied. The United States has by far the largest area of agricultural land – approximately 400 million hectares, nearly ten times greater than Germany's 50 million hectares and over forty times greater than Kyrgyzstan's 9.5 million hectares. This high concentration of agricultural land in the U.S. is matched by significant investment flows: USD 20 billion per year, of which USD 15 billion is attributed to foreign investment. These figures underscore the openness, liquidity, and attractiveness of the American land market. Within Europe, Germany leads in investment volume with EUR 10

118 Nazaralieva, A.B., Niyazova, A.N. 2023. Disputes on the termination of the right to land plots: A review of judicial practice. *Bulletin of the Karaganda University,* 112(4), 100-105. https://doi.org/10.31489/2023l4/100-105.

119 Food and Agriculture Organization of the United Nations. 2025. Publications. https://www.fao.org/publications/en.

120 Jiang, L., Bao, A., Jiapaer, G., Liu, R., Yuan, Y., Yu, T. 2022. Monitoring land degradation and assessing its drivers to support sustainable development goal 15.3 in Central Asia. *Science of the Total Environment*, 807(2), 150868. https://doi.org/10.1016/j.scitotenv.2021.150868.

billion, which correlates with its well-developed legal environment, highly accurate cadastral system, and advanced planning structures as outlined in Table 1. The volume of land transactions and annual market turnover are also key indicators of economic activity. The USA, with 500,000 transactions and USD 70 billion in turnover, far outpaces other countries. For comparison, Germany registers 100,000 transactions and EUR 15 billion, while France reports 80,000 transactions and EUR 12 billion annually. Poland exhibits more moderate values, reflecting a smaller agricultural land base (16.5 million hectares) and regulatory restrictions on foreign land acquisition. The lowest figures are found in Kyrgyzstan: only 10,000 transactions and USD 800 million in turnover annually. These values reflect both the modest scale of the land market and the nascent stage of regulatory development. While modern features such as digitalisation and a unified cadastre system are being implemented, the overall framework remains in the formation stage (as seen in Table 1). By comparing the data from both tables, it becomes evident that the efficiency of land markets is closely tied to the quality of regulatory frameworks, the institutional structure of land governance, and the degree of digital integration. Countries with strong land management institutions – such as SAFER in France or federal land agencies in the United States – benefit from clear territorial planning, transparent rights registration, and legal certainty, all of which enhance the economic attractiveness of their land markets. In contrast, countries with less structured land management systems, such as Kyrgyzstan, show considerable development potential, but require continued improvement of their legal frameworks, institutional capacities, and administrative infrastructure in order to ensure more effective and sustainable land governance.

The results of the study demonstrate significant potential for improving land policy, particularly in developing countries. The adaptation of successful international practices – such as the registration system in Germany or leasing models in China – can enhance the efficiency of land use and increase the investment attractiveness of the land sector. Further research into these issues within the broader context of sustainable development, innovative technologies, and digitalisation is essential for shaping a modern model of land administration. At the same time, it is crucial to consider the national specificities of legal systems and the level of institutional development when implementing international best practices.

The role of the state extends beyond market regulation; it must also ensure transparency, legal certainty, and the protection of the rights of both landowners and land users. By fostering a balanced legal and institutional environment, countries can support sustainable land governance that aligns with both economic needs and social priorities.

5. Conclusions

As a result of the comparative study of the legal regulation of land relations in Kyrgyzstan, Germany, France, Poland, and the United States, significant differences were identified in terms of regulatory frameworks, institutional support, approaches to the circulation of agricultural land, the degree of digitalisation, and the extent of environmental integration. The study confirmed that legal traditions (continental, Anglo-Saxon, or mixed systems) exert a strong influence on the nature of land governance, particularly regarding the structure of regulatory bodies, the design of territorial planning instruments, and the regulation of foreign investment. Quantitative data collected during the study revealed a clear connection between the level of economic development and the activity of the land market. The United States demonstrated the highest indicators, with an agricultural land area of 400 million hectares, an annual volume of 500,000 land transactions, and foreign capital inflows of USD 15 billion. In contrast, Kyrgyzstan recorded significantly lower figures – only 10,000 transactions per year, USD 800 million in total turnover, and USD 50 million in foreign investment – highlighting the urgent need to strengthen the legal and institutional foundations of the national land market.

A key practical outcome of the research is the identification of instruments that may be adapted for use in transition economies. These include electronic registration systems (as seen in Germany and Poland) and mechanisms for preventing land speculation (e.g., SAFER in France). It is recommended that countries seeking to modernise their land governance frameworks consider the implementation of integrated digital platforms, reinforcement of environmental safeguards, and the expansion of community involvement in spatial planning processes. The study also faced certain limitations, primarily due to the inconsistency of statistical data across countries and variations in national methodologies for recording land transactions. Future research should focus on the dynamics of legal change in land legislation and the influence of international standards on national land governance systems. Beyond the comparative analysis, the study identified emerging global trends in the transformation of land relations. Notably, countries at all stages of development are increasingly prioritising digitalisation, transparency in land accounting, and sustainable land use. These shifts are reflected in the adoption of electronic cadastres, automated rights registration systems, and geo-information platforms. In parallel, there is growing emphasis on the integration of environmental considerations into land use decision-making, driven by global concerns such as climate change and soil degradation. These trends point to the necessity of harmonising legal and technical frameworks at the international level, through cooperation, exchange of best practices, and active participation in global initiatives on land management.

Kalybek Abdykadyrov
Director, PhD at the Institute of Economics and Management in the Kyrgyz State University named after I. Arabaev
abdykadyrovkalybek266@gmail.com
Rysbek Dzhumakanov
Associate Professor, PhD at the Institute of Economics and Management in the Kyrgyz State University named after I. Arabaev
r.dzhumakanov@outlook.com
Aliya Ismailakhunova
Associate Professor, PhD at the Kyrgyz-Russian Slavic University named after B. N. Yeltsin
aliya-ism@hotmail.com
Altynbek Toichubek Uulu
Associate Professor, PhD at the Institute of Economics and Management in the Kyrgyz State University named after I. Arabaev
a_toichubekuulu@outlook.com

New Trends in the Regulation of the Banking Sector: International Experience and its Applicability to the Central Asian Countries

Abstract

The aim of the work was to study modern approaches to banking regulation based on the experience of developed countries (Canada, Germany, Singapore) and to determine the possibilities of the adaptation in the context of the banking system of Kyrgyzstan, taking into account the processes of digitalisation and institutional constraints. The research methodology included comparative analysis, SWOT analysis, content analysis of legal documents, statistical processing of data from the National Bank of the Kyrgyz Republic, international regulatory standards (in particular, the requirements of Basel I and II). The research produced unique data reflecting the state and dynamics of the digital transformation of the banking sector of Kyrgyzstan. It was established that from 2021 to April 2025 the number of mobile banking users increased by 35% and amounted to 1.2 million people. The example of MBank showed a high degree of integration of digital services – more than 10 million downloads of the mobile application and 3 million active clients by 2024, which constituted about 80% of the adult population of the country. The bank's loan portfolio over the same period grew by 400% – from 7 to 35 billion soms. The results of the research showed that, despite the high level of digitalisation, the existing regulatory system in Kyrgyzstan required certain modernisation. In particular, a number of deviations from the requirements of the Basel Accords were revealed in terms of internal control, risk assessment, and corporate governance. The SWOT analysis confirmed the presence of both strengths (broad access to digital services, state support) and weaknesses (staff shortage, fragmentation of regulation). The work consisted in formulating specific recommendations for financial supervisory authorities and the banking sector of Kyrgyzstan regarding the adaptation of international regulatory practices. In particular, it was proposed to introduce independent risk committees in banks, automate scoring procedures based on Big Data, and revise the regulatory framework in accordance with the requirements of Basel III. The results obtained could be used in the development of a digital transformation strategy and the reform of banking supervision in the Central Asian countries.

KEYWORDS: Financial Stability, Economic Policy, Digitalisation, Economic Development, Adaptation of Mechanisms.

1. Introduction

The financial system plays a key role in economic development, and the banking sector is its foundation. Effective banking regulation contributes to the stability of the economy, the reduction of risks, and the protection of depositors' interests. Different countries apply different approaches to regulation, reflecting the specifics of economic policy, the legal system, and the level of development of financial capital. In the context of globalisation, international financial organisations and leading economic centres develop mechanisms aimed at improving the reliability of the banking system and preventing crisis phenomena[1]. These approaches form general trends in banking regulation, which are adapted taking in-

1 O. KOLODIZIEV, M. KRUPKA, N. SHULGA, M. KULCHYTSKYY and O. LOZYNSKA, *The level of digital transformation affecting the competitiveness of banks,* in *Banks and Bank Systems*, 2021, 16(1), pp. 81–91.

to account national characteristics. The Central Asian countries, being in the process of economic transformation, also face the need to improve banking regulation[2]. The analysis of global experience makes it possible to identify the most effective instruments and to assess the possible application in the region.

The study of banking regulation in Central Asia covers a wide range of aspects, including digitalisation, competition, liquidity, legal frameworks, and the specifics of Islamic banking. The analysis of scientific sources makes it possible to identify key research areas in this field. The impact of digitalisation and competition on the efficiency of the banking sector of Kyrgyzstan was examined in detail in the work of Begimkulov[3]. The author revealed that digital technologies had a significant impact on the financial stability of banks, increasing the profitability and competitiveness. However, it was noted that without adequate regulation, digitalisation could create new risks for the financial sector. The relationship between the liquidity of the banking system and economic growth was analysed by Hoxha et al.[4]. The authors concluded that the stability of the banking sector directly depended on the ability of banks to maintain a sufficient level of liquidity, which required effective regulation and monitoring.

Mechanisms of state control in the transport sector were studied by Jalolova et al.[5]. The work was not directly devoted to the banking sector, but the aspects of state regulation considered in it may be useful for understanding general trends in the management of strategic sectors of the economy, including finance. Regulatory aspects of digital banking in Central Asia were studied in detail by Mamadiyarov and Karshiev[6]. In the work, the authors compared the legal fra-

2 S. NIYAZBEKOVA, A. ZVERKOVA, N. SOKOLINSKAYA and S. KERIMKHULLE, *Features of the «Green» strategies for the development of banks,* in *E3S Web of Conferences*, 2023, 402, 08029.

3 E. BEGIMKULOV, *The empirical measurement of competition and digitalization for the banking sector of Kyrgyzstan: Impacts on efficiency, profitability, and stability*, in *Journal of Eastern European and Central Asian Research*, 2024, 11(5), pp. 956–967.

4 I. HOXHA, N. ATABAEV, B. MARLENOVA, G. ATABAEVA and I. KELES, *Does Kyrgyz banking system liquidity provide economic growth?*, in *Journal of International Studies*, 2022, 15(4), pp. 241–262.

5 M. JALOLOVA, L. AMIROV, M. ASKAROVA and G. ZAKHIDOV, *Territorial features of railway transport control mechanisms*, in *Transportation Research Procedia*, 2022, 63, pp. 2645–2652.

6 Z. MAMADIYAROV and D. KARSHIEV, *Regulatory framework for digital banking in Central Asia: Lessons from global best practices*, in *American Journal of Business Practice*, 2024, 1(4), pp. 21–27.

mework of the region with international standards, emphasising the need to adapt best practices to create favourable conditions for digital financial services. Although the study did not directly concern the banking sector, its results pointed to the importance of effective regulation for the stable development of key sectors of the economy, which is also relevant for the financial system. The development of the microfinance and credit monitoring system in Kyrgyzstan and Ukraine became the subject of research by Murzaibraim et al.[7]. The authors noted that competent regulation of microfinance organisations contributed to the expansion of access of the population to financial services and strengthened the stability of the banking system.

Factors influencing the growth of small enterprises in Central Asia were analysed in the work of Nizaeva[8]. In the study, the author emphasised that the regulatory and institutional environment played a decisive role in business development, and banking regulation was one of the key factors determining the availability of credit resources. In particular, it was noted that complex administrative procedures, the high cost of borrowed capital, and limited access to financing hindered the expansion of small enterprises. The author stressed the need to reform regulatory policy aimed at simplifying lending procedures and improving financial accessibility for entrepreneurs. The compliance of Kyrgyzstan's banking legislation with the Islamic financial standards of the Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) was studied by Ercanbrack[9]. In the work, the author considered the problems of adapting Islamic financial principles into national legislation, as well as the challenges faced by banks in introducing Islamic products. The study showed that the lack of clear legal norms regulating Islamic banking hindered its integration into the country's financial system. The problems of Islamic banking in Kyrgyzstan were also

7 R. MURZAIBRAIM, V. OSMONBETOVA, G. SANSYZBAEVA, S. IVASHYNA and O. IVASHYNA, *Features of the development of the microfinance and credit monitoring system in Kyrgyzstan and Ukraine*, in *Theoretical and Practical Research in Economic Fields*, 2024, 15(2), pp. 196–206.

8 M. NIZAEVA, *Regulatory and institutional factors driving small firms' growth in Central Asia*, in *Eurasian Journal of Business and Economics*, 2024, 17(34), pp. 167–184.

9 J. ERCANBRACK, *The standardization of Islamic financial law: Lawmaking in modern financial markets*, in *American Journal of Comparative Law*, 2019, 67(4), pp. 825–860.

covered in the research of Zhoraev and Yüksek[10]. The authors noted that the development of this segment of the financial market was limited by legal and institutional barriers, which required a revision of existing regulatory norms. The work emphasised that despite the growing interest in Islamic banking services, the spread remained limited due to the shortage of qualified personnel, an insufficient legal framework, and difficulties with product certification under AAOIFI standards. Thus, existing research highlighted the importance of improving regulatory mechanisms to support small business, develop Islamic banking, and ensure financial stability in Central Asia. The studies indicated the need to adapt international standards, reform national legal norms, and remove institutional barriers hindering the development of the region's financial sector.

Despite the existence of a significant amount of research devoted to banking regulation in the Central Asian countries, some important aspects remain unresolved. In particular, there is no comprehensive comparative analysis of approaches to regulating digital banking in the context of international practice, especially using the examples of such countries as Canada, Germany, and Singapore. It is also insufficiently studied how elements of digital transformation can be effectively integrated into the existing legal framework, taking into account local conditions and institutional constraints.

The aim of the research was to analyse new trends in the regulation of the banking sector on the basis of international experience and to assess the applicability to the Central Asian countries. The tasks of the research were: to analyse the current situation in the banking system of Kyrgyzstan with an emphasis on digitalisation and credit risk management tools, to compare the approaches to banking regulation applied in Kyrgyzstan with international standards such as the recommendations of Basel I and II, as well as to develop proposals for improving the methodological basis of risk management and the introduction of advanced technologies in the banking sector.

10 A. ZHORAEV and A. YUKSEK, *Challenges for Islamic banking industry: The Kyrgyz Republic experience*, in *Ondokuz Mayis University Faculty of Theology Journal*, 2021, (50), pp. 713–730.

2. Materials and Methods

The research represented an applied analysis with the use of elements of the comparative method and was conducted throughout 2024 – early 2025. Data collection was carried out through the analysis of the current legal and regulatory framework of the Kyrgyz Republic, including Constitutional Law of the Kyrgyz Republic No. 92 "On the National Bank of the Kyrgyz Republic"[11], Law of the Kyrgyz Republic No. 93 "On Banks and Banking Activities"[12], as well as the strategic document "Concept digital transformation of the Kyrgyz Republic for 2024-2028"[13]. The method of content analysis was applied to identify the key directions of digitalisation in the banking system of Kyrgyzstan and to assess the level of adaptation of regulatory requirements to international standards. In particular, the experience of implementing remote banking, credit scoring automation and digital client identification was analysed. In parallel, an analysis was conducted of the compliance of the applied credit risk management tools with the recommendations of Basel I and II. The provisions of "International convergence of capital measurement and capital standards"[14] and "International convergence of capital measurement and capital standards: A revised framework"[15] were studied, which made it possible to identify the key discrepancies and weaknesses in the national risk assessment system. The comparative method made it possible to compare the approaches used in Kyrgyzstan with the international practices of such countries as Canada, Singapore, and Germany in aspects such as banking supervision mechanisms, transparency standards, capital requirements, the introduction of digital banking and approaches to financial risk management. The choice of Canada, Singapore, and Germany was determined by the stable finan-

11 *Constitutional Law of the Kyrgyz Republic No. 92 "On the National Bank of the Kyrgyz Republic"*, 2022 at <https://cbd.minjust.gov.kg/112424/edition/1262743/ru>

12 *Law of the Kyrgyz Republic No. 93 "On Banks and Banking Activities"*, 2022 at <https://cbd.minjust.gov.kg/4-3214/edition/1241184/ru>

13 *Concept digital transformation of the Kyrgyz Republic for 2024–2028*, 2024 at <https://cbd.minjust.gov.kg/30-164/edition/6414/ru>

14 BASEL COMMITTEE ON BANKING SUPERVISION, *International convergence of capital measurement and capital standards*, 1988 at <https://www.bis.org/publ/bcbs04.pdf>

15 BASEL COMMITTEE ON BANKING SUPERVISION, *International convergence of capital measurement and capital standards: A revised framework*, 2004 at <https://www.bis.org/publ/bcbs107.pdf>

cial systems, effective banking regulation and the successful implementation of innovative approaches relevant for adaptation in the countries of Central Asia. On the basis of this analysis, proposals were developed for improving the national model of banking risk management.

The interpretation of the results was based on the systemic approach, which made it possible to link the digitalisation of the banking sector with the need to improve the quality of risk management. A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was carried out, during which the strengths and weaknesses, opportunities and threats for the regulatory system of the banking sector of Kyrgyzstan were identified. All identified weaknesses were correlated with opportunities for the elimination through the harmonisation of national standards with international requirements.

3. Results

3.1. Analysis of the current situations in the banking system of Kyrgyzstan

In the context of the rapid digital transformation, the banking sector is undergoing significant changes, affecting both the structure of the services provided and the regulatory mechanisms. The active introduction of fintech solutions is changing the format of interaction between banks and clients, increasing the requirements for data security and creating new challenges for regulatory bodies. The issue of compliance of national standards with international requirements, such as the Basel Accords, as well as the ability of banking systems to adapt to global challenges, becomes particularly acute. The digitalisation of the banking system represents the process of introducing digital technologies into the sphere of financial services. The key elements of digitalisation are remote banking, mobile applications, electronic payments, automated credit scoring systems, digital client identification[16]. These tools make it possible to increase the accessibility and speed of services, reduce operating costs and strengthen the control of financial operations.

16 F. FITRIASARI, N.A. AUZAIRY, R.A. RAHIM and H.O. ZAKI, *A systematic review of the behavior intention on mobile banking and stock trading,* in *Multidisciplinary Reviews*, 2024, 7(6), e2024112.

Credit scoring is a system for assessing the borrower's solvency based on algorithms processing numerous parameters: credit history, income level, behavioural data[17]. Modern scoring models increasingly use artificial intelligence and Big Data technologies to improve the accuracy of forecasts. Digital identification is a mechanism for confirming the client's identity through electronic means, including biometric data, electronic signatures or scanned documents[18]. It is particularly important for remote account opening and online transactions, ensuring both convenience and protection against fraud. The Basel Accords are international regulatory standards developed by the Basel Committee on Banking Supervision. The accords set requirements for capital adequacy, risk management and liquidity in banks. Basel I, II and III consistently strengthened regulatory requirements, reflecting global crisis lessons and the need to increase the resilience of the banking system. Thus, modern realities require countries, including those of Central Asia, not only to implement digital solutions but also to revise regulatory approaches with the aim of harmonising regulatory frameworks with international practices.

The realities of Central Asia are characterised by a number of specific economic, social and technological features that influence the development of the financial sector and the introduction of digital banking technologies. The region is witnessing a gradual growth in the level of digitalisation, but access to high-speed internet and digital services remains uneven between and within countries, creating additional barriers to the mass introduction of innovative banking products. The economies of the Central Asian (CA) countries largely depend on the raw materials sector and migrant remittances, which form specific needs for financial services, such as international transfers and microfinance[19]. In addition, the region is experiencing active development of state digital transformation program-

17 S. KERIMKHULLE, N. OBROSOVA, A. SHANANIN and A. TOKHMETOV, *Young Duality for Variational Inequalities and Nonparametric Method of Demand Analysis in Input–Output Models with Inputs Substitution: Application for Kazakhstan Economy,* in *Mathematics*, 2023, 11(19), 4216.

18 G. AZIEVA, S. KERIMKHULLE, U. TURUSBEKOVA, A. ALIMAGAMBETOVA and S. NIYAZBEKOVA, *Analysis of access to the electricity transmission network using information technologies in some countries,* in *E3S Web of Conferences*, 2021, 258, 11003.

19 Y. PATASHKOVA, S. NIYAZBEKOVA, S. KERIMKHULLE, M. SERIKOVA and M. TROYANSKAYA, *Dynamics of Bitcoin trading on the Binance cryptocurrency exchange,* in *Economic Annals-XXI*, 2021, 187(1–2), pp. 177–188.

mes aimed at creating digital infrastructure and improving the regulatory framework, though the level of implementation and success of these initiatives vary significantly. An important factor remains the insufficient level of financial literacy among the population and limited trust in digital technologies, which requires a comprehensive approach to the development of educational programmes and increasing the transparency of banks' work. Overall, the realities of Central Asia represent a unique context in which digital banking is developing, considering the specifics of the local market, social conditions and infrastructural opportunities, requiring the adaptation of international experience to regional characteristics.

The regulatory and legal framework of Kyrgyzstan generally complies with basic international requirements, but there are certain gaps in the practical implementation of Basel II and Basel III standards. In particular, despite the fact that credit risk assessment mechanisms are provided for at the legislative level, in practice there is no flexible stress-testing toolkit, and the Internal Capital Adequacy Assessment Process (ICAAP) procedures are formally declared but not actually integrated into banks' management processes. A low level of digital maturity of most banks was also identified, except for two institutions that have introduced automated risk analysis systems using machine learning algorithms. By comparison, in Kazakhstan and Uzbekistan, pilot projects on digital compliance and predictive analytics have been in place since 2023, while in Kyrgyzstan such initiatives are only being discussed[20].

Another important area has been the strengthening of operational risk management with a focus on cybersecurity. Meanwhile, according to the National Bank of the Kyrgyz Republic[21], the number of incidents related to attempts to hack banking systems increased in 2024 by 24% compared to 2023. International experience – in particular the practice of Canada – demonstrates the importance of a comprehensive approach to cyber risks, including staff training, the introduction of multifactor authentication and regular IT infrastructure audits. Such

20 *European Union provides Kyrgyzstan with EUR 3 million to support digital transformation*, 2024 at <https://www.eeas.europa.eu/delegations/kyrgyz-republic/european-union-provides-kyrgyzstan-eur-3-million-support-digital-transformation_en>

21 NATIONAL BANK OF THE KYRGYZ REPUBLIC, *The financial sector stability report of the Kyrgyz Republic according to the results of the first half of 2024*, 2024 at <https://www.nbkr.kg/DOC/04032025/000000000063907.pdf>

measures can also be adapted for the conditions of Kyrgyzstan, taking into account the scale of the banking system and the level of digitalisation.

Thus, the conducted research made it possible to identify both positive shifts and persistent barriers in the development of risk management in the banking sector of Kyrgyzstan. Examples of successful digitalisation of individual banks and the regulator's aspiration to introduce international standards create prerequisites for further progress. At the same time, institutional reforms, the strengthening of specialists' competencies and the creation of an enabling environment for technological development are required. The results obtained indicated the need for a comprehensive approach that combines the adaptation of international standards taking into account the national context, digital transformation and the improvement of corporate governance quality. It is precisely such an approach that will strengthen the resilience of the banking system and increase clients' trust in financial institutions.

3.2. Comparison of international regulatory standards with national practice

In the context of the rapid digital transformation of the banking sector, Kyrgyzstan demonstrates significant progress in the introduction of digital financial services. According to the National Bank of the Kyrgyz Republic, by 2023 more than 80% of the population had access to the internet, and the number of mobile banking users increased by 35% between 2021 and 2023, reaching 1.2 million people. This indicates the growing popularity of digital financial services among the country's population. One of the leading players in the digital banking sector is MBank[22], which in 2024 reached 10 million downloads of its mobile application and serves more than 3 million active clients, accounting for 80% of the country's adult population. The bank offers a wide range of digital services, including instant online loans, real-time international transfers, and integrated entertainment functions such as music and television streaming. This reflects the transformation of traditional banking into a multifunctional digital ecosystem. The growth of digital banking services is accompanied by the introduction of automated credit scoring systems. MBank, for example, significantly expanded

22 MBANK, *Financial report*, 2025 at <https://mbank.kg/en/reports>

its loan portfolio, which in 2024 reached 35 billion soms (USD 408 million), 400% more than in 2021. This was made possible by the introduction of instant online loans based on automated scoring models that take into account a wide range of client data.

Within the framework of the "Digital Kyrgyzstan" strategy, the government actively promotes the introduction of digital client identification in the financial sector[23]. This enables banks to effectively carry out "Know Your Customer" (KYC) procedures and provides safe access to financial services for a wide population, including residents of remote regions. With regard to compliance with regulatory requirements of international standards, Kyrgyzstan is taking steps to harmonise with the recommendations of the Basel Committee on Banking Supervision. For example, in 2024 the country became a member of the Basel Consultative Group, which reflects its commitment to integration into the global financial system and the introduction of advanced banking supervision practices[24]. Thus, the analysis shows that Kyrgyzstan is actively introducing digital technologies in the banking sector, particularly in remote banking, automated credit scoring, and digital client identification. The country is also taking steps to adapt regulatory requirements to international standards, which contributes to strengthening the stability and efficiency of the banking system.

For a deeper understanding of Kyrgyzstan's position in the context of the global digitalisation of the banking sector, it is necessary to consider key indicators and initiatives in Canada, Germany, and Singapore. According to the Canadian Bankers Association, in 2024 78% of Canadians used online and mobile banking for most of the banking operations[25]. In 2024, 81% of Canadians used digital banking tools for all or most of the banking operations. Canadians expressed high satisfaction with digital banking services: 97% were satisfied with online banking, and 96% with mobile applications. In 2024, 50% of bank account hol-

---

23 *Kyrgyzstan is confidently advancing on the path of digital transformation*, 2025 at <https://www.undp.org/kyrgyzstan/press-releases/kyrgyzstan-confidently-advancing-path-digital-transformation>

24 BANK FOR INTERNATIONAL SETTLEMENTS, *Basel Committee broadens its membership*, 2009 at <https://www.bis.org/press/p090610.htm>

25 *Use of digital banking has become habitual post pandemic: CBA survey*, 2024 at <https://www.newswire.ca/news-releases/use-of-digital-banking-has-become-habitual-post-pandemic-cba-survey-869452120.html>

ders in Germany managed the finances through mobile banking. More than 75% of Germans used digital payments in 2024. At the beginning of 2024, the level of internet penetration in Germany was 93.1%[26]. According to Finder, in 2023 30% of Singaporeans had accounts in digital banks. At the beginning of 2023, the level of internet penetration in Singapore was 96.9%. Singapore is one of the world leaders in the introduction of digital banking, ranking fourth in terms of penetration[27].

The comparative analysis shows that Kyrgyzstan is actively developing digital banking services, achieving significant success in mobile banking, automated credit scoring, and digital client identification. However, compared to Canada, Germany, and Singapore, there are areas for further development, particularly in terms of harmonising regulatory standards and introducing advanced risk management technologies (Table 1). The experience of these countries can serve as a benchmark for Kyrgyzstan in its efforts to create a sustainable and innovative banking ecosystem.

Table 1. Comparative analysis of approaches to banking sector regulation in the context of digitalisation

Criterion	Kyrgyzstan	Canada	Germany	Singapore
Availability of state digitalisation strategy for banking	Partially implemented within the framework of the "Digital Kyrgyzstan" programme	Digital Charter in force, FinTech Sandbox initiative	Digital development strategy of the financial sector introduced	Full MAS programme: Smart Financial Centre
Automated credit scoring	Applied selectively, no unified	Widely introduced, use of artificial	Applied in accordance with General Data	Supported at the regulator level (MAS),

26 STATISTA, *Share of bank account holders processing banking matters via mobile banking ... in Germany*, 2025 at <https://www.statista.com/statistics/1395370/mobile-banking-penetration-in-germany/>

27 *30% of Singaporeans to have digital bank accounts by 2023*, 2022 at <https://sbr.com.sg/news/30-singaporeans-have-digital-bank-accounts-2023>

	standards	intelligence (AI) and Big Data	Protection Regulation (GDPR) requirements	integration with e-KYC
Digital client identification (e-KYC)	Pilot projects, limited application	BankID system in operation, mandatory KYC standards	Unified digital identification system (eID) introduced	Developed national e-KYC platform, biometrics, mobile IDs
Risk management under Basel II / III	Basel II partially introduced, full implementation absent	Full harmonisation with Basel II and III	All Basel III provisions introduced, active banking supervision	MAS applies Basel III and its own enhanced standards
Availability of internal risk committees in banks	Optional, not applied in all banks	Mandatory for large banks, controlled by the Office of the Superintendent of Financial Institutions (OSFI)	Legally established internal risk management structures	MAS requirement for all systemically important banks
Regulation of fintech and innovations	At the formation stage	FinTech Sandbox and Innovation Hub by OSFI	BaFin regulates fintech via separate licences and regulation	MAS actively develops fintech through APIX and regtech initiatives

[Source: compiled by the authors based on Basel Committee on Banking Supervision, Basel Committee on Banking Supervision, Constitutional Law of the Kyrgyz Republic No. 92, Law of the Kyrgyz Republic No. 93, Concept digital transformation of the Kyrgyz Republic for 2024-2028]

The comparative analysis shows that Kyrgyzstan's banking system is taking steps towards digitalisation, but it remains at an early stage compared to countries such as Canada, Germany, and Singapore. The main gaps are: incomplete implementation of international risk management standards (Basel II and III), weak institutionalisation of internal risk management mechanisms, and limited development of digital client identification. At the same time, international experience demonstrates the effectiveness of integrating digital solutions with clear regulatory frameworks, especially with the involvement of central regulators. Kyrgyzstan can use these practices to create a balanced regulatory model in which innovation and stability of the banking sector develop in parallel.

In the context of the active development of digital banking, Kyrgyzstan demonstrates both achievements and structural limitations. On the one hand, there is rapid growth in the number of mobile banking users, expansion of digital products, the introduction of automated scoring models, and the development of digital identification systems. This forms a solid basis for further technological progress. On the other hand, the country faces a number of challenges: the need to modernise the regulatory framework in line with international standards (particularly Basel II and III), limited resources for the introduction of advanced risk management solutions, and a shortage of qualified personnel in fintech and digital regulation. Considering the experience of such countries as Canada, Germany, and Singapore, it becomes clear that the strategic development of digital banking must be combined with institutional strengthening of regulatory mechanisms. These circumstances create the basis for conducting a SWOT analysis, which allows for a systematic assessment of the internal and external factors affecting the digital transformation of Kyrgyzstan's banking sector (Table 2).

Table 2. SWOT analysis of the regulatory system of the Kyrgyz banking sector

Strengths	**Weaknesses**
Active digitalisation (MBank, mobile services, online lending)	Incomplete compliance of regulations with Basel standards
Accessibility of banking services through mobile platforms	Lack of a unified approach to risk management in banks
Support from the state ("Digital Kyrgyzstan" programme)	Insufficient IT infrastructure in the regions

Development of digital identification	Limited number of specialists in financial compliance and cybersecurity
Opportunities	**Threats**
Adaptation to Basel II and III standards	Regulatory lag behind the pace of digitalisation
Integration with global financial initiatives	Cyber threats and fraud due to the growth of digital channels
Introduction of Big Data and automated scoring	Public distrust of the banking system due to low financial literacy
Development of public-private partnership in the regulatory sphere	External economic dependence and political instability in the region

[Source: compiled by the authors]

The SWOT analysis demonstrates that Kyrgyzstan has achieved substantial progress in the digitalisation of banking services, particularly due to the active introduction of mobile banking, the development of electronic identification, and state support through national digital transformation programmes. These achievements provide the basis for further modernisation of the financial sector and create preconditions for improving financial accessibility, especially in remote regions. At the same time, alongside technological achievements, there are significant weaknesses in the regulatory system. One of the main problems is the limited compliance of existing banking regulation with international standards, particularly the Basel II and III agreements. The insufficient level of internal control and the absence of a unified approach to risk management in financial institutions restrict the ability to respond effectively to new challenges of the digital economy[28]. In addition, the system lacks qualified personnel in compliance, IT security, and analytics, which are critically important in the context of growing cyber threats and the emergence of new digital products. Uneven infrastructure development between cities and regions creates additional barriers to compre-

28 M. GULALIYEV, S. ABASOVA, S. GULIYEVA, E. SAMEDOVA and M. ORUCOVA, *The Main Problems of Building the Digital Economy of Azerbaijan,* in *WSEAS Transactions on Business and Economics*, 2023, 20, pp. 1383–1395.

hensive digitalisation[29]. Meanwhile, the country has significant potential for development through the integration of international experience, in particular by adapting elements of the regulatory approaches of leading countries (Canada, Germany, Singapore), expanding the use of Big Data in banking practice, and introducing automated credit risk assessment systems. The successful use of these opportunities can significantly increase the stability of the banking sector and contribute to its sustainable growth in the context of global digital transformation.

3.3. Development of recommendations for improving the methodology of risk management in the banking sector

The development of recommendations for improving the methodology of risk management in the banking sector was an important task for ensuring the stability of financial institutions, especially in the context of global economic uncertainty. In the last decades of 2015-2025, the banking system faced a number of new challenges, including liquidity crises, credit and operational risks, as well as threats related to cyberattacks and digital risks. In this regard, the improvement of risk management methods and the introduction of innovative technologies became a priority for banks worldwide. This process required not only the improvement of existing approaches, but also the introduction of new methods that would help increase the accuracy and efficiency of decision-making.

One of the main innovations in the field of risk management was the use of artificial intelligence (AI) and machine learning technologies for data analysis and risk forecasting[30]. AI allowed banks to analyse the financial condition of clients more accurately and quickly, which contributed to a more precise determination of credit risk. For example, the use of machine learning allowed the processing of large amounts of client data, the identification of patterns, and the prediction of possible risks with greater accuracy than traditional methods[31]. This enabled banks to respond promptly to changes in the financial situation of

29 V. BRYCH, R. SKRYNKOVSKYY, L. SHKVARCHUK, G. LIAKHOVYCH, R. SLAV'YUK and O. BORYSIAK, *Portfolio Optimization of Equity Funds,* in *Proceedings – International Conference on Advanced Computer Information Technologies (ACIT)*, 2022, pp. 207–210.

30 A. DALKE, S. SVYATOV and E. RUZIYEVA, *Criteria for Identification and Regulation of Systemically Important Banks,* in *Accounting, Economics and Law: A Convivium*, 2025. https://doi.org/10.1515/ael-2024-0070

borrowers and avoid unnecessary losses. In addition, the introduction of blockchain technologies could significantly improve transparency and security of operations in the banking sector. Blockchain provided opportunities for the creation of secure and immutable records of transactions, which helped reduce fraud risks and increase trust in financial institutions[32]. In some countries, such as Singapore and the United Kingdom, blockchain was already actively used in the banking sector to improve the transparency of transactions as well as the efficiency of international payments. The introduction of such technologies into the risk management system allowed banks not only to increase the level of security, but also to reduce operational risks related to the human factor.

However, in addition to technological innovations, an important aspect of improving the methodology of risk management was the enhancement of the quality of corporate governance in banking institutions[33]. Numerous crises in the banking sector demonstrated the importance of having a clear and transparent risk management system in which every employee understood the role in ensuring financial security. In this regard, a number of countries adopted initiatives to improve corporate governance and regulate the activities of banks. For example, within the framework of the Basel Accords, requirements for banks' capital were developed, which should ensure the financial stability even in times of crisis. One of the proposals for improving the methodology of risk management was the introduction of "regulatory sandboxes" — a concept actively developed in the United Kingdom and Singapore. Regulatory sandboxes allowed the testing of innovative financial products and technologies in controlled conditions, which made it possible to avoid risks to the stability of the financial system. Banks operating in such conditions could introduce new solutions, such as cryptocurrencies and financial technologies (fintech), without fear of violating regulatory requiremen-

---

31 S. NAUMENKOVA, V. MISHCHENKO, I. CHUGUNOV and S. MISHCHENKO, *Debt-for-nature or climate swaps in public finance management,* in *Problems and Perspectives in Management*, 2023, 21(3), pp. 698–713.

32 R.I. HASANOV, L. VASA, S. GULIYEVA, Z. GIYASOVA and Z. SHAKARALIYEVA, *Assessing the impact of oil prices and inflation on bank deposits in Azerbaijan,* in *Banks and Bank Systems*, 2025, 20(1), pp. 11–22.

33 X. YU and K. XIAO, *COVID-19 Government restriction policy, COVID-19 vaccination and stock markets: Evidence from a global perspective,* in *Finance Research Letters*, 2023, 53, 103669.

ts[34]. This also provided an opportunity for rapid response to changes in the legislative and regulatory framework, which was particularly important in the context of rapid technological development.

Another critical aspect was the need to improve existing credit underwriting methods, which formed an integral part of risk management. Traditional methods of assessing the creditworthiness of borrowers, such as the analysis of financial statements and credit history, still remained relevant, but these methods did not always provide a full picture of existing and potential risks[35]. Modern approaches proposed the use of more precise statistical models and algorithms that allowed the consideration of a wide range of factors, including social and economic conditions, as well as the behaviour of the borrower. This enabled banks to predict more accurately the probability of default and minimise risks when making lending decisions. An example of the successful application of innovative methods in credit underwriting was the use of credit scoring models that took into account not only the financial indicators of the borrower, but also data from social networks, information about the behaviour in the labour market, and other factors. The use of such models was already actively applied in countries with developed financial systems and was actively being introduced in developing countries[36]. The introduction of such methods in Kazakhstan and Kyrgyzstan could significantly increase the accuracy of credit analysis and, as a result, improve the methodology of risk management in the banking sector.

One of the significant problems for the banking sector remained operational risks associated with violations of technological security and cyberattacks. In the latest years, with the increase in the volume of digital operations, the risk of cyber threats also increased. In this regard, in order to strengthen the resilience of banking systems, it was important to introduce additional mechanisms for data

---

34 V. MISHCHENKO, S. NAUMENKOVA, S. MISHCHENKO and I. TISHCHENKO, *Formation and Functioning of Financial Metaverse Platforms,* in *Financial and Credit Activity: Problems of Theory and Practice*, 2025, 1(60), pp. 111–122.

35 V.A. KRASNOBAYEV, S.A. KOSHMAN and M.A. MAVRINA, *A Method for Increasing the Reliability of Verification of Data Represented in a Residue Number System,* in *Cybernetics and Systems Analysis*, 2014, 50(6), pp. 969–976.

36 V. KHARCHENKO, Y. PONOCHOVNYI, A.-S.M. QAHTAN and A. BOYARCHUK, *Security and availability models for smart building automation systems,* in *International Journal of Computing*, 2017, 16(4), pp. 194–202.

protection and the safeguarding of transaction confidentiality. The introduction of similar standards in the countries of Central Asia would also help improve the security of banking operations and reduce risks related to breaches of data confidentiality. For effective risk management in the banking sector, not only modern technologies and innovations were necessary, but also the constant improvement of the regulatory framework. For this, it was important to create conditions under which banks could adapt to new circumstances and ensure the stability of the operations in any economic situation. In this regard, a key element was the cooperation of banking organisations with state and international regulatory bodies for the development and introduction of new standards and regulations in the field of risk management.

4. Discussion

The results of the study showed that new trends in banking sector regulation had a significant impact on the stability of financial systems, the efficiency of banking activities, and the level of inclusivity of financial services. In particular, it was revealed that regulation oriented towards digitalisation, sustainable development, and risk management contributed to increasing the competitiveness of banks and improving the availability of credit resources in Central Asian countries. These results corresponded to the findings made by Ahamed et al.[37], who emphasised the importance of inclusive banking and effective regulation for enhancing the financial resilience of banking systems. A comparative analysis of international experience in banking regulation showed that the key trend in the latest years had been the strengthening of supervision over risks associated with digital financial services and the introduction of artificial intelligence technologies. In this respect, the study supported the conclusions of Begenau and Landvoigt[38], who argued that modern regulatory methods should consider changes in the structure of the banking system caused by digital transformations. Truby et al.[39]

37 M.M. AHAMED, S.J. HO and S.K. MALLICK, *Inclusive banking, financial regulation and bank performance: Cross country evidence*, in *Journal of Banking & Finance*, 2021, 124, 106055.

38 J. BEGENAU and T. LANDVOIGT, *Financial regulation in a quantitative model of the modern banking system*, in *Review of Economic Studies*, 2022, 89(4), pp. 1748–1784.

39 J. TRUBY, R. BROWN and A. DAHDAL, *Banking on AI: Mandating a proactive approach to AI regulation in the financial sector*, in *Law and Financial Markets Review*, 2020, 14(2), pp. 110–120.

also pointed out the need for a proactive approach to regulating artificial intelligence in the financial sector, since the use of algorithms for credit risk assessment and asset management required strict control by regulators. One of the significant areas of regulation was the development of sustainable banking, especially in the context of financing environmentally oriented projects. The results obtained confirmed the findings of Fatica et al.[40] and Matthews et al.[41], who found that financial institutions played a special role in pricing "green" bonds and attracting capital into sustainable projects. Regulatory initiatives in Central Asian countries aimed at supporting sustainable development financing were reflected in the studies of Quan et al.[42], where it was emphasised that the integration of sustainable development principles into banking required a revision of regulatory standards and the introduction of new models for assessing financial risks.

Special attention in the study was given to the influence of fintech companies on traditional banking institutions and the need to adapt regulatory mechanisms to the conditions of the digital economy. The results obtained coincided with the conclusions of Murinde et al.[43], who emphasised that the fintech revolution represented both new opportunities and serious challenges for the banking sector. In Central Asian countries, similar trends were observed related to the development of digital banking and the growth of competition between traditional banks and fintech start-ups. Wewege et al.[44] noted that the digital transformation of banks required updating the existing regulatory framework and introducing new standards of risk management, which was also confirmed within the framework of the study. In addition, the results of the study showed that the peculiarities of corporate governance in the banking sphere had a significant im-

40 S. FATICA, R. PANZICA and M. RANCAN, *The pricing of green bonds: Are financial institutions special?*, in *Journal of Financial Stability*, 2021, 54, 100873.

41 K. MATTHEWS, J. THOMPSON and T. ZHANG, *Economics of Banking*, Singapore: World Scientific Publishing Co., 2024 at <https://files.znu.edu.ua/files/Bibliobooks/Inshi79/0058789.pdf>

42 X. QUAN, Y. KE, Y. QIAN and Y. ZHANG, *CEO foreign experience and green innovation: Evidence from China*, in *Journal of Business Ethics*, 2021, 182, pp. 535–557.

43 V. MURINDE, E. RIZOPOULOS and M. ZACHARIADIS, *The impact of the FinTech revolution on the future of banking: Opportunities and risks*, in *International Review of Financial Analysis*, 2022, 81, 102103.

44 L. WEWEGE, J. LEE and M.C. THOMSETT, *Disruptions and digital banking trends*, in *Journal of Applied Finance and Banking*, 2020, 10(6), pp. 15–56.

pact on the effectiveness of regulatory mechanisms. This conclusion corresponded to the research of Al Farooque et al.[45] and Wang et al.[46], who emphasised that ownership structure and the activity of audit committees in banking institutions were important factors determining financial stability. Similar results were obtained by Saunders et al.[47], who focused attention on the importance of risk management in modern financial institutions. Another significant aspect of the study was the examination of macroeconomic factors influencing banking regulation. The analysis showed that cycles of growth and decline in financial markets had a direct impact on the effectiveness of regulatory measures, which corresponded to the findings of Duca et al.[48], who considered the influence of economic cycles on asset value and the resilience of the banking system. Buchak et al.[49] also noted that modern banking regulations should take into account financial market instability and develop mechanisms to reduce systemic risks.

The study established that one of the key problems of banking regulation in Central Asia was the need to balance between the development of financial technologies and ensuring customer security. This aspect was confirmed in the work of Thisarani and Fernando[50], where the prospects of using artificial intelligence in the banking sector were analysed and the importance of creating regulatory frameworks for user data protection was noted. At the same time, Suryono et al.[51] indicated that the development of financial technologies was accompanied by the growth of cyber risks, which required regulators to introduce additional

45 O. AL FAROOQUE, W. BUACHOOM and L. SUN, *Board, audit committee, ownership and financial performance – emerging trends from Thailand*, in *Pacific Accounting Review*, 2020, 32(1), pp. 54–81.

46 X. WANG, Y. CHEN, Z. LI, G. FANG and Y. WANG, *Development and utilization of water resources and assessment of water security in Central Asia*, in *Agricultural Water Management*, 2020, 240, 106297.

47 A. SAUNDERS, M.M. CORNETT and O. ERHEMJAMTS, *Financial Institutions Management: A Risk Management Approach*, New York: McGraw Hill, 2024.

48 J.V. DUCA, J. MUELLBAUER and A. MURPHY, *What drives house price cycles? International experience and policy issues*, in *Journal of Economic Literature*, 2021, 59(3), pp. 773–864.

49 G. BUCHAK, G. MATVOS, T. PISKORSKI and A. SERU, *Beyond the balance sheet model of banking: Implications for bank regulation and monetary policy*, in *Journal of Political Economy*, 2024, 132(2), pp. 616–693.

50 M. THISARANI and S. FERNANDO, *Artificial intelligence for futuristic banking*, in *2021 IEEE International Conference on Engineering, Technology and Innovation*, 2021, pp. 1–13.

51 R.R. SURYONO, I. BUDI and B. PURWANDARI, *Challenges and trends of financial technology (Fintech): A systematic literature review*, in *Information*, 2020, 11(12), 590.

cybersecurity standards. Additionally, it was revealed that in Central Asian countries there was increased interest in financial inclusivity, which corresponded with the results of Ozili[52], who analysed global trends in financial accessibility and emphasised the significance of regulatory initiatives aimed at reducing barriers to banking services.

In the context of the research by Challoumis[53] and Liu et al.[54], the relationship between the level of democratisation and the innovative activity of firms in post-communist countries of Europe and Central Asia was considered. The authors emphasised that access to finance was one of the key factors determining economic growth in these regions. As a result of the study, it was shown that in conditions where Central Asian countries faced various barriers to entrepreneurship and innovation, effective banking regulation could play an important role in stimulating economic activity. Particular attention was given to how the availability of financial resources directly influenced the ability of small and medium-sized enterprises (SMEs) to develop innovative projects and overcome economic challenges. The results of this study fully confirmed the conclusions of VenkateswaraRao et al.[55], who analysed the use of big data for managing credit risks. In the study, the authors noted that the introduction of such technologies required the creation of specialised regulatory norms that would ensure security and transparency in the use of big data in financial operations. This opinion corresponded with the results of the study, which also showed that Central Asian countries faced the need to develop new regulatory approaches to ensure the effective use of these technologies.

52 P.K. OZILI, *Financial inclusion research around the world: A review*, in *Forum for Social Economics*, 2021, 50(4), pp. 457–479.

53 C. CHALLOUMIS, *Demystifying the banking system: The importance of the money cycle*, 2024 at <https://www.academia.edu/download/120660911/ssrn_4943496_2_.pdf>

54 F.H. LIU, L. NORDEN and F. SPARGOLI, *Does uniqueness in banking matter?*, in *Journal of Banking & Finance*, 2020, 120, 105941.

55 M. VENKATESWARARAO, S. VELLELA, V. REDDY B, N. VULLAM, K. BASHA SK and B. ROJA, *Credit investigation and comprehensive risk management system based on big data analytics in commercial banking*, in *2023 9th International Conference on Advanced Computing and Communication Systems*, 2023, pp. 2387–2391.

In addition, Pugliese et al.[56] and Basnayake et al.[57] focused attention on changes in risk management approaches caused by the introduction of machine learning and algorithmic models. In the authors' opinion, such technologies could significantly improve risk assessment processes and increase the efficiency of financial flow management. Importantly, the authors emphasised the need for appropriate regulation that would consider the specifics of such technologies. In this context, the results of the study also showed that for the successful implementation and use of such technologies in the banking sector of Central Asia, it was necessary to develop new regulatory acts and regulations that would ensure security and minimise risks associated with the use of algorithmic models in financial institutions. The results obtained confirmed the conclusions of a number of foreign researchers, which indicated the global nature of these trends. However, in Central Asian countries, certain features were identified related to the need to adapt international regulatory standards to the regional context, which required further research. In particular, a promising direction could be the development of recommendations for the introduction of digital technologies in the banking sector, taking into account the specifics of the region's legal systems. The issue of forming effective regulatory mechanisms for sustainable financing and combating cyber risks also remained relevant. Thus, the results of the study not only supplemented the existing scientific understanding of banking regulation but also indicated possible directions for further research that could help to improve the efficiency of financial institutions and the stability of the banking system in Central Asian countries.

5. Conclusions

As a result of the study, the key directions of digitalisation of the banking sector of Kyrgyzstan were identified, and the degree of compliance of the regulatory environment with international standards was assessed. The application of the content analysis method made it possible to identify the most relevant aspec-

56 R. PUGLIESE, S. REGONDI and R. MARINI, *Machine learning-based approach: Global trends, research directions, and regulatory standpoints*, in *Data Science and Management*, 2021, 4, pp. 19–29.

57 D. BASNAYAKE, A. NARANPANAWA, S. SELVANATHAN and J.S. BANDARA, *Financial inclusion through digitalization and economic growth in Asia Pacific countries*, in *International Review of Financial Analysis*, 2024, 96(Part A), 103596.

ts of digital transformation: remote banking, credit scoring automation, and the introduction of digital client identification. Based on the data of the National Bank of the Kyrgyz Republic, it was established that from 2021 to 2023, the number of mobile banking users increased by 35% and reached 1.2 million people, which accounted for more than 80% of the adult population of the country. This confirmed the high level of penetration of digital financial services in the country. An example of successful digital transformation was MBank, whose mobile application by 2024 had been downloaded more than 10 million times, and the number of active clients exceeded 3 million, which accounted for about 80% of the adult population of Kyrgyzstan. The bank's loan portfolio reached 35 billion soms, increasing by 400% compared to 2021, which became possible due to the introduction of automated scoring models using extended user data. The analysis of compliance of the applied credit risk management tools in Kyrgyzstan with the Basel I and II standards showed the presence of both coincidences and deviations. In particular, it was established that although individual provisions concerning the minimum level of capital and basic principles of risk management were partially implemented, the system of internal control and qualitative risk analysis remained insufficiently developed. This indicated the need for further institutional and regulatory modernisation.

A comparative analysis with such countries as Canada, Germany, and Singapore showed that in these jurisdictions digital transformation was accompanied by a strictly structured regulatory system, independent risk committees within banks, and the active use of Big Data technologies and client behaviour analytics. Kyrgyzstan, in turn, was recommended to adapt these approaches taking into account national conditions. In particular, it was proposed: the introduction of automated default prediction models, the active use of big data in borrower assessment, the creation of independent risk committees, as well as the strengthening of regulatory supervision over digital products. Within the framework of the SWOT analysis, it was determined that the main strengths of the banking sector of Kyrgyzstan were the high level of digital technology penetration and government support for digitalisation. Weaknesses included insufficient institutional readiness, a shortage of qualified personnel, and the fragmentation of the regulatory framework. Among the opportunities were the potential for adapting international practices and the development of partnerships with fintech companies, and the threats included cyber risks and regulatory instability.

The interpretation of the results obtained based on a systematic approach made it possible to link the level of digitalisation with the need to improve the quality of banking risk management. It was confirmed that without the modernisation of regulatory mechanisms, especially regarding compliance with international requirements, the sustainable development of digital banking in the country was difficult. The qualitative results of the study included the identification of specific discrepancies between the national risk assessment system and the provisions of Basel I, II, and III; the identification of weak points in the regulatory structure; and the formation of practical recommendations for improving the risk management model. The growth of quantitative indicators of the banking sector indicated the high potential of digital transformation under appropriate regulatory conditions. The limitations of the study were the lack of full transparency in bank reporting, limited access to internal regulatory documents, and the dependence of national legislation on political decisions, which could hinder the introduction of changes.

Bolot Toktobaev
Head, Full Doctor at the Department of Theory and History of State and Law in the Kyrgyz National University named after Jusup Balasagyn
b.toktobaev@outlook.com
Kushtarbek Zhusupbaev
Senior Lecturer at the Department of Criminalistics, Forensic Science and Customs Affairs in the Osh State University
zhusupbaevkushtarbek@gmail.com
Azizbek Tashmamatov
Senior Lecturer at the Department of Criminalistics, Forensic Science and Customs Affairs in the Osh State University
a-tashmamatov@hotmail.com
Timurlan Abdipattaev
Senior Lecturer at the Department of Theory and History of State and Law in the Osh State University
t_abdipattaev@outlook.com
Syrbek Saymidinov
Lecturer at the Department of Criminalistics, Forensic Science and Customs Affairs in the Osh State University
ssaymidinov@hotmail.com

Peculiarities of the Legal Regulation of Customs Transit Procedures in the Eurasian Economic Union Countries

Abstract

The relevance of this study arises from the increasing significance of customs transit in the integration processes within the Eurasian Economic Union (EAEU), particularly in light of the need for digitalisation and the harmonisation of regulatory approaches among member states. The purpose of the study was to identify legal and practical discrepancies in the regulation of transit procedures, as well as to develop recommendations for the unification of approaches, which would enhance the efficiency of the transit system, foster integration, and minimise administrative barriers in foreign economic activity. The methodological foundation of the study was a comparative legal analysis of the regulatory frameworks governing transit procedures in Armenia, Kazakhstan, and Kyrgyzstan, incorporating international standards, decisions of supranational bodies, and elements of the structural-functional approach. The study revealed the absence of a

unified enforcement mechanism, limited mutual recognition of customs procedures, and significant discrepancies in the legal regulation of guarantees for carrier liability. In the case of Armenia, where additional inspections are conducted even when a valid transit carnet is presented, a breach of the principle of continuous customs supervision was identified. A low level of technical compatibility among national information technology (IT) systems was also recorded, complicating the implementation of electronic document flows and leading to the duplication of procedures. Disparities in the application of risk management systems (RMS) were observed, with some countries relying on manual analysis models in contrast to others employing automated platforms utilising machine learning. The findings indicate a pressing need to unify law enforcement practices and to establish an integrated digital infrastructure to ensure an effective transit regime.

KEYWORDS: Digital Customs Platforms, Simplification of Procedures, Legal Discrepancies, Cross-Border Regulation, Administrative Barriers, Electronic Logistics.

1. Introduction

In the modern globalised economy, customs transit constitutes a key element in ensuring the continuity of international trade, as it enables goods to be transported through the territory of intermediate states without the payment of customs duties and facilitates movement between production clusters. For the member states of the EAEU, transit flows are an important component of economic development, integration into global value chains, and logistical cooperation with Europe, China, and South Asia. Given the geographical location of the region and its participation in strategic transport initiatives such as the "One Belt, One Road", the relevance of effective regulation of customs transit within the EAEU has increased significantly. However, the complexity of harmonising national legislation, differing levels of digitalisation of procedures, and limited transparency in interagency interaction present a number of legal and practical challenges.

Despite the formal unification of customs procedures under the EAEU Customs Code[1], fragmentation remains in the application of transit legislation among member states. The practical implementation of transit is complicated by varying interpretations of certain provisions, particularly with regard to carrier liability, control of guarantees, and electronic document flow. At the same time, attempts to harmonise customs regulation with international standards – specifically, the World Trade Organisation's (WTO) Agreement on Trade Facilitation[2], the Transit Recommendations of the World Customs Organisation[3], and the Customs Convention on the International Transport of Goods under Cover of International Road Transport (TIR) Carnets (TIR Convention) (United Nations Economic Commission for Europe (UNECE)[4] – have only been partially implemented.

Existing administrative barriers in individual states, insufficient technical integration of customs authorities' IT systems, and differing approaches to risk assessment continue to impede the establishment of a unified customs infrastructure within the Union[5]. This is evidenced by internal reports of the Eurasian Economic Commission (EEC)[6], which indicate that, despite the introduction of the electronic customs transit system, the level of its integration among member states remains inadequate (Organisation for Economic Co-operation and Development (OECD)[7]. Moreover, not all countries have equally effectively implemented the provisions of the Protocol on Amendments to Annexe No. 1 to the

1 EURASIAN ECONOMIC UNION (EAEU), *Customs Code of the Eurasian Economic Union*, 2017 at <https://eec.eaeunion.org/upload/medialibrary/9dd/Customs-Code-of-the-EAEU.pdf>

2 WORLD TRADE ORGANISATION (WTO), *Agreement on trade facilitation*, 2017 at <https://www.wto.org/english/docs_e/legal_e/tfa_e.htm>

3 WORLD CUSTOMS ORGANISATION (WCO), *Transit guidelines*, 2017 at <https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/transit/transit-guidelines.pdf>

4 UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (UNECE), *Customs Convention on the International Transport of Goods under Cover of International Road Transport (TIR) Carnets (TIR Convention)*, 2020 at <https://unece.org/2020-9>

5 M. ALIYEV, M. GULIYEV, U. ABDULLAEV, L. HUSEYNOVA and G. AZIZOVA, *Strategies for improving the competitiveness of agricultural products and China's trade policy in the world market*, in *Scientific Horizons*, 2024, 27(11), pp. 129–140.

6 EURASIAN ECONOMIC COMMISSION, *EAEU statistics for 2023 published*, 2023 at <https://eec.eaeunion.org/en/news/opublikovana-statistika-eaes-po-itogam-2023-goda/>

7 ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), *Trade*, 2025 at <https://www.oecd.org/en/topics/trade.html>

Customs Code, which limits the effectiveness of transit as a tool for integration.

In scientific discourse, the issue of customs transit is examined both in the context of institutional regulation and from the perspective of economic efficiency and integration. Studies by Braun et al.[8], as well as Arynov et al.[9], highlight the structural weaknesses of the EAEU as an integration association, particularly with regard to internal regulatory coherence in the areas of trade and transit regulation. These authors emphasise that, despite political declarations, the actual level of legal integration remains limited, thereby reducing the efficiency of customs administration within the Union.

A number of studies[10,11,12] analyse the impact of EAEU membership on the development of the national economies of smaller states such as Armenia and Kyrgyzstan, focusing on barriers to the transit movement of goods, including infrastructural fragmentation and legal instability. Researchers have pointed out that customs barriers within the EAEU itself are comparable to those at its external borders, indicating the weak implementation of a common transit policy. Conversely, studies by Egger et al.[13], and Sahakyan[14], explore the potential for digitalisation of transit control and mutual data exchange to improve logistical interoperability among member states. However, the authors note that initiatives for digital customs support largely remain at the pilot stage or lack a formally established legal basis.

8 M. BRAUN, A. GROMILOVA and L. MELNIKOVOVÁ, *Understanding economic integration in the Eurasian Economic Union – The relevance of integration theories*, in *Journal of Contemporary European Studies*, 2023, 32(1), pp. 66–79.

9 Z. ARYNOV, S. ORAZGALIYEV and L. ISSOVA, *Non-recognizing the other? Discursive deligitimation of the EAEU by the EU*, in *Journal of Contemporary European Studies*, 2023, 32(2), pp. 524–537.

10 E. DAVTYAN, *Being small in a large club: Unpacking Armenia's actorness in the Eurasian Economic Union*, in *Southeast European and Black Sea Studies*, 2023, 25(2), pp. 211–227.

11 S. BEKBOLOTOVA, N. DJANIBEKOV and T. HERZFELD, *How does regional economic integration impact trade in small economies? Evidence from Armenia and Kyrgyzstan's EAEU accession*, in *Eurasian Geography and Economics*, 2025, pp. 1–29.

12 V. HOVHANNISYAN and V. URUTYAN, *Consumer welfare consequences of Armenia's EAEU accession*, in *Eastern European Economics*, 2023, 61(3), pp. 270–289.

13 P. EGGER, S.X. RAO and S. PAPINI, *A new algorithm for matching Chinese NBS firm-level with customs data*, in *China Economic Journal*, 2021, 14(3), pp. 311–335.

14 M.D. SAHAKYAN, *China's digital silk road and the Eurasian economic union's member states: Cooperation, challenges, and opportunities*, in *Asian Affairs*, 2024, 55(4), pp. 603–622.

In addition, analytical works addressing transit issues are emerging within the scientific field of Kyrgyzstan. For instance, Zhusupbaev and Toktobaev[15] examine the implementation of international norms on customs transit within the legal system of the Kyrgyz Republic, identifying fragmentation in harmonisation efforts and weak institutional capacity in the area of control. This suggests that, despite membership in the EAEU, the country's transit policy remains at an early stage of institutional development.

Summarising the literature review, it can be stated that the vast majority of scientific works either focus on the general dynamics of integration within the EAEU or consider customs transit as a tool of foreign economic relations[16,17]. However, the practical aspects of the harmonisation of customs transit, the unification of procedures, and electronic administration within a single legal framework remain only fragmentarily addressed. This gap in research forms the basis for posing a new research question.

In view of the identified conceptual and practical limitations in the functioning of customs transit within the EAEU, there is a clear need for a systematic legal analysis of the extent to which transit procedures comply with international standards and their capacity to support regional economic integration. This study analysed the current legal regulation of customs transit within the EAEU, taking into account relevant international standards. The hypothesis of the study was that the legal regulation of transit in the EAEU is characterised by internal fragmentation and incomplete implementation of international obligations, which undermines its integration potential.

2. Materials and methods

The study was aimed at a comprehensive analysis of the transit procedure within the legal framework of the member states of the EAEU. Given the interdisciplinary nature of the problem, the research was conducted within the fra-

15 K.K. ZHUSUPBAEV and B.T. TOKTOBAEV, *Implementation of the international law norms on customs transit in the legal system of the Kyrgyz Republic*, in *World Customs Journal*, 2025, 19(1), pp. 21–37.

16 B. SANGHERA and E. SATYBALDIEVA, *Rentier capitalism and global economic imaginaries in Central Asia*, in *Globalizations*, 2023, pp. 1–21.

17 E.C. GURCAN, *The construction of "post-hegemonic multipolarity" in Eurasia: A comparative perspective*, in *Japanese Political Economy*, 2020, 46(2–3), pp. 127–151.

mework of legal science, incorporating elements of applied analysis in the fields of customs administration, IT, and logistics management. The methodological basis of the study was a comparative approach, which enabled the examination of similarities and differences among the legal systems of the EAEU member states with respect to transit regulation. The analysis was carried out with reference to international legal instruments, including the Agreement on Trade Facilitation of the WTO, the TIR Convention, recommendations of the WCO, and acts of the EU.

The study utilised the regulatory framework of the EAEU, in particular the Customs Code of the EAEU, decisions of the EEC, and the national laws and by-laws of the participating countries in the field of customs regulation. Considerable attention was devoted to supranational acts that establish the general rules of the transit procedure, as well as to provisions governing electronic document flow, RMS, and legal control mechanisms. The assessment of the compliance of customs transit regulation with international standards was carried out during the second stage of the study. For this purpose, the comparative legal method was applied in conjunction with elements of legal hermeneutics. The provisions of the Customs Code of the EAEU were interpreted and meaningfully compared with national legislative acts and their practical application in Armenia, Kazakhstan, and Kyrgyzstan, which were selected as representative EAEU member states for the analysis.

The comparative analysis was based on criteria including compliance of national legislation with international standards, legal mechanisms for ensuring the fulfilment of customs obligations, the level of digitalisation of transit procedures, and the effectiveness of law enforcement practices. The conclusions were substantiated with reference to the provisions of the WTO Agreement on Trade Facilitation, the TIR Convention, the Transit Guidelines of the WCO, Regulation (EU) No. 952/2013 of the European Parliament[18] and of the Council laying down the Union Customs Code, and the annual reports of the European Commission on the functioning of the customs union.

18 REGULATION (EU) No. 952/2013, *Laying down the Union Customs Code (recast)*, 2013 at <https://eur-lex.europa.eu/eli/reg/2013/952/oj/eng>

Particular value was attributed to the official publications of the EEC, which provided current quantitative indicators of digitalisation and an assessment of the effectiveness of the transit system within the Union. The analysis of these data employed elements of the structural-functional method to identify relationships between regulatory frameworks and the practical outcomes of transit operations. Analytical documents from the World Bank[19] and the OECD, developed within a systemic approach to offer macroeconomic context for the functioning of transit in the region, were also taken into consideration.

To determine the level of digital maturity of transit procedures in the countries of the EAEU, an indicative digitalisation scale was developed. This scale comprised five key parameters: the existence of an electronic document management system; integration with the electronic consignment note (e-CMR) platform; the level of automation in risk control; the degree of interdepartmental integration of information systems; and the number of transactions processed in a paperless format.

3. Results

3.1. Analysis of the current legal framework for transit in the EAEU and its compliance with international standards

The customs transit procedure represents a key element of the internal market of the EAEU, enabling the movement of foreign goods without the payment of duties and taxes, provided that transit requirements are met. Legal regulation is based on the EAEU Customs Code, which establishes uniform rules for the movement of goods between the customs authorities of member states without altering their customs status. Section 22 of the Code regulates the main stages of transit – from the submission of an electronic declaration and route determination to the completion of the procedure. Considerable attention is devoted to the implementation of digital solutions, particularly electronic document management, electronic seals, and monitoring systems, all of which

19 WORLD BANK, *Connecting to compete 2023: Trade logistics in an uncertain global economy – The logistics performance index and its indicators*, 2023 at <https://documents.worldbank.org/pt/publication/documents-reports/documentdetail/099042123145531599/p17146804a6a570ac0a4f80895e320dda1e>

are intended to enhance the transparency and efficiency of procedures. The institution of a customs guarantor plays a crucial role in covering the risks of non-fulfilment of obligations[20,21]. Additionally, a simplification mechanism for authorised operators is provided, allowing for reduced clearance times and simplified routing.

As part of the EAEU's strategy for integration within the internal market, particular emphasis is placed on navigational transit control. As noted in the public report of the EEC, a satellite-based cargo tracking system is being gradually introduced in several member states; however, the degree of integration between countries remains limited, and the technical compatibility of the relevant IT systems requires further enhancement.

The EEC plays a central role in regulating customs transit within the EAEU, issuing decisions that have direct effect within the legal systems of member states. It develops regulations elaborating the provisions of the Customs Code, particularly in the field of electronic transit – for example, the Unified Customs Information Exchange System (Decision No. 63, 2019). The 2021 Protocol to Annex No. 1 of the EAEU Customs Code introduced the electronic transit declaration and the institution of a transit operator; however, its implementation remains incomplete. The EEC also issues methodological recommendations for customs authorities concerning valuation, seal application, and cargo escort. Although these documents are not legally binding, they contribute to the harmonisation of procedures and technical standards across the Union.

Harmonisation with international obligations also plays a significant role, and is carried out by the EEC through the adaptation of Eurasian approaches to the standards of the WCO and the WTO. For example, in implementing the requirements for electronic registration as stipulated by the WTO Agreement on Trade Facilitation, the EEC acts as a coordinator for the interstate exchange of experience in the application of the Agreement's provisions and the Transit

20 A. KAZAKOV, N. MUSAEVA, I. GONCHAROVA, A. MAMBETKULOVA, A. OROZONOVA and N. AKYLBEKOVA, *Sustainable logistics management of public procurement of medical equipment*, in *BIO Web of Conferences*, 2024, 120, 01066.

21 N. DOLZHENKO, I. ASSILBEKOVA, Z. KONAKBAY, O. GARMASH and G. MURATBEKOVA, *Organization of transport services and transport process safety*, in *Periodica Polytechnica Transportation Engineering*, 2025, 53(3), pp. 277–291.

Guidelines.

In addition to regulatory instruments, the EEC also employs institutional control mechanisms. This includes, in particular, a system of annual monitoring of the implementation of transit policy, the results of which are published in official reports. These reports present both quantitative indicators (such as the number of electronic declarations, average processing time, and number of violations detected) and qualitative analyses of problematic areas – for instance, the low level of IT system integration or the lack of synchronisation in national standards for document processing.

Despite the formal unification of the transit procedure as provided by the EAEU Customs Code, the implementation of these provisions at the national level reveals significant disparities. In particular, digital integration, organisational and legal mechanisms, and the infrastructural capacity of customs administrations differ not only in terms of development levels, but also according to the political and economic context of each country[22,23].

Kazakhstan demonstrates one of the highest levels of digitalisation in customs procedures. The introduction of electronic transit monitoring using Global Positioning System (GPS) navigation, combined with a risk-based control approach, allows for the optimisation of cargo movement across the country's territory[24,25]. As noted in an analytical study on the digitalisation of trade procedures in emerging economies, such practices significantly reduce transaction costs and enhance procedural transparency[26]. Armenia, due to its geographical isolation and political challenges, has limited capacity to implement

---

22 D. SINOIMERI, J. TETA, V. PRIFTI and A. LAZAJ, *Information technology in supply chain management. Case study*, in *Lecture Notes on Multidisciplinary Industrial Engineering*, 2024, Part F2090, pp. 35–44.

23 J. HASANOVA and K. NAJAFOVA, *Research and analysis of opportunities for regional economic integration among the countries of the Organization of Turkic States*, in *Economics of Development*, 2025, 24(2), pp. 54–67.

24 V. DANCHUK, A. COMI, C. WEISS and V. SVATKO, *The optimization of cargo delivery processes with dynamic route updates in smart logistics*, in *Eastern-European Journal of Enterprise Technologies*, 2023, 2(3-122), pp. 64–73.

25 I. TARAN, R. OLZHABAYEVA, M. OLISKEVYCH and V. DANCHUK, *Structural optimization of multimodal routes for cargo delivery*, in *Archives of Transport*, 2023, 67(3), pp. 49–70.

26 M.A. AL-SHBOUL, *Facilitating trade and improving supply chain security through transit trade mobility: An empirical investigation from developing country*, in *Cogent Social Sciences*, 2023, 9(2), p. 2263942.

an effective transit model. Restricted integration with the digital platforms of other EAEU countries, along with institutional weaknesses at the implementation level, present significant obstacles to effective transit. Kyrgyzstan has demonstrated moderate progress in digital transformation; however, system integration with the customs infrastructures of other Union countries remains incomplete. Consequently, there are instances of duplicated controls, repeated submission of documents, and additional delays at borders, all of which negatively affect transit efficiency.

These structural and procedural discrepancies among EAEU member states create an uneven regulatory environment, despite the formal unification of the customs space. To clearly illustrate the principal characteristics of transit regulation within the Union, a comparative analysis of national systems is warranted. Table 1 summarises key elements, including the level of digitalisation of transit procedures, the nature of guarantee instruments, the degree of mutual recognition of documents, and the customs control model in each of the EAEU countries.

Table 1. Comparative overview of transit norms in the EAEU countries (as of 2024)

Country	Transit digitalisation	Guarantee features	Documentation mutual recognition	Customs control specifics
Kazakhstan	High level	Insurance companies + bank guarantees	Partially integrated	Emphasis on IT transit monitoring
Armenia	Medium, low coverage	Limited set of guarantees	Poorly implemented	Bureaucratic burden
Kyrgyzstan	Progressive but unstable	Bank guarantees + manual accounting	Often not recognised	Double control due to technical barriers

[Source: compiled by the authors based on EEC, Hovhannisyan and Urutyan, Zhunussova and Dulambayeva[27]]

One of the key principles of an effective transit regime is its compliance with international obligations, primarily those outlined in the WTO Trade Facilitation Agreement. This agreement establishes the obligation of states to ensure the

27 A. ZHUNUSSOVA and R. DULAMBAYEVA, *Trade in services in Kazakhstan: How did the entry into the EAEU affect it?*, in *Journal of East-West Business*, 2022, 28(2), pp. 185–199.

transparency of procedures, predictability of controls, minimisation of delays, simplification of document flow, and non-discriminatory access to transit routes.

The Customs Code of the EAEU enshrines the principle of freedom of transit as the foundation of the legal regime governing the movement of goods, in line with the spirit of Article 11 of the WTO Agreement. The EAEU Customs Code stipulates that transit must not be subject to unjustified delays, prohibitions, or discriminatory restrictions, and that all procedural aspects should be unified at the Union level.

However, in practice, the level of compliance with the WTO Agreement varies across the EAEU member states. For example, the WTO report noted that some Union members exhibit "significant gaps" in ensuring procedural transparency – particularly in relation to documentation requirements and the procedures for applying guarantees. Similar concerns apply to the automation of RMS and the exchange of advance information between customs authorities.

A comparison of the articles of the EAEU Customs Code with the provisions of the WTO Agreement reveals both areas of alignment and systemic discrepancies. In particular, while Article 214 of the EAEU Customs Code refers to the possibility of prior declaration, the procedure itself and the associated information requirements remain too general and are not sufficiently detailed in the relevant by-laws. In contrast, the WTO Agreement mandates specific measures from customs authorities, including clearly defined deadlines for processing transit cargo and safeguards against unauthorised inspections. The analysed sources indicate that, although the fundamental principles of the EAEU Customs Code formally correspond to WTO norms, the mechanisms for their implementation exhibit several functional and procedural shortcomings. This is particularly evident in relation to instruments for providing guarantees, access to mechanisms for appealing customs decisions, and the transparency of procedures – all of which are identified by the WTO[28] as critical for facilitating transit.

Assessing the level of compliance of the EAEU Customs Code with the WTO Trade Facilitation Agreement represents a key stage in determining the extent to which the legal norms of the regional integration association are harmoni-

28 WORLD TRADE ORGANISATION (WTO), *World trade report 2023*, 2023 at <https://www.wto.org/english/res_e/booksp_e/wtr23_e/wtr23_e.pdf>

sed with global standards. As shown by scientific analysis although the EAEU Customs Code formally incorporates many provisions of the Agreement, implementation remains partial in several areas. This is particularly true for standards concerning guarantees, procedural transparency, and mechanisms for electronic information exchange. Based on the available data, a visual comparison was conducted across key categories, illustrating variability in the level of compliance, as presented in the diagram below (Figure 1).

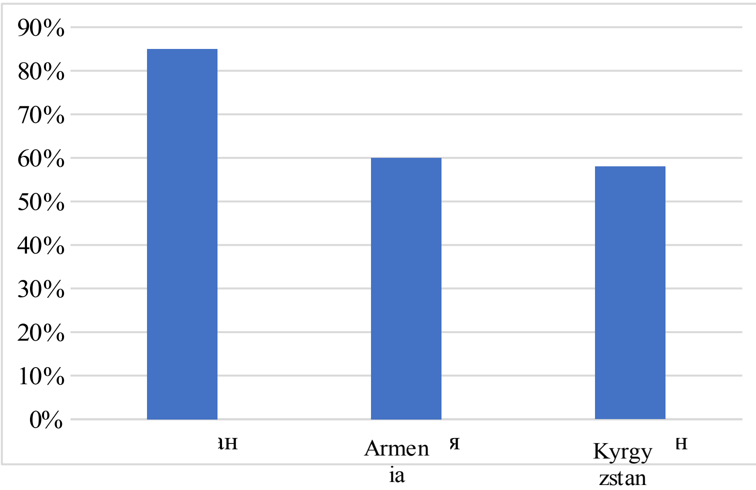


Fig. 1. Compliance of the EAEU Customs Code with the provisions of the WTO Agreement

[Source: compiled by the authors based on EAEU, WTO]

An important indicator of the EAEU's commitment to modernising its customs system is the degree of compliance with, and implementation of, the WCO's Transit Guidelines. This document outlines international best practices for organising the transit process, with particular emphasis on procedural transparency, effective use of electronic tools, application of the Single Window mechanism, and integration of guarantee schemes. Despite the EEC's declared commitment to harmonising customs procedures, actual compliance with the WCO recommendations remains partial. Notably, significant disparities persist in the areas of multimodal transit and IT system integration among member states[29].

Although the EAEU Customs Code provides for the use of electronic guarantees, in practice, certain countries continue to rely on paper-based proce-

29 UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD), *Trade and development report 2022*, 2022 at <https://unctad.org/tdr2022>

dures, contravening the principles of digitalisation. The absence of a mechanism for mutual recognition of customs controls precludes the implementation of the "single point of entry-exit" principle[30]. While the Customs Space Development Strategy until 2025 includes provisions for the adaptation of WCO standards, its implementation is still at an early stage.

In this context, the TIR Convention, which establishes uniform customs rules for transit, serves as an example of effective international harmonisation. All EAEU member states are full parties to the TIR Convention, and its provisions have been integrated into both national and supranational transit regulation. The EAEU Customs Code explicitly recognises the use of the TIR system as one of the legitimate mechanisms for customs transit. Nevertheless, an analysis of TIR implementation across EAEU countries reveals uneven application of the Convention's standards and mechanisms.

In practical terms, persistent issues remain regarding the mutual recognition of customs control results, the harmonisation of access procedures to the TIR system, and the digital interoperability of IT systems for the electronic processing of TIR transport. These barriers are particularly evident in cross-border transport between countries with differing levels of development in digital customs services or varying administrative requirements. In addition, in some instances, the principle of "customs tranquillity" – which stipulates that cargo transported under the TIR regime should move without additional national inspections – is violated[31]. As demonstrated by the study conducted by Hovhannisyan and Urutyan, in the case of Armenia, customs authorities may conduct supplementary checks even when a valid TIR carnet is present, which contradicts the core principles of the Convention.

The WCO, in its recommendations, has emphasised the importance of integrating the electronic eTIR system, which enables the automation of transit control and ensures transparency for all stakeholders. However, the implementation of eTIR within the EAEU remains part of long-term strategic plans and cur-

30 G. GLOUFTSIOS, *"Assess in advance, control where required". Risk, privatisation and data in EU customs security*, in *European Security*, 2024, 34(2), pp. 210–230.

31 R. DIMITROV, I. TRUNINA, V. DRUZHYNINA, T. ISMAILOV and M. BILYK, *Innovative support for sustainable development of the agricultural sector*, in *BIO Web of Conferences*, 2024, 114, 01009.

rently lacks a unified technical infrastructure.

3.2. Identification of legal coalitions and contradictions and analysis of digital solutions in transit

One of the principal problems of customs transit within the EAEU is the ambiguous application of rules concerning guarantees for customs obligations and carrier liability. Although the EAEU Customs Code provides for mandatory transit guarantees through financial or institutional mechanisms, the scope and nature of this liability remain insufficiently defined, creating legal uncertainty. In practice, guarantees are not consistently recognised across EAEU countries – in particular, Armenia and Kyrgyzstan impose separate requirements for the registration of financial obligations, which do not align with Union-wide standards. This leads to complications in transit routing and increases operational costs for businesses. Furthermore, in instances of cargo damage or loss, carrier liability is interpreted inconsistently – especially in cases involving force majeure or third-party intervention. The absence of a unified compensation mechanism complicates dispute resolution processes.

In comparison to the provisions of the WTO Agreement on Trade Facilitation, which mandates transparent regulation of guarantee mechanisms, and the modern instruments of the WCO, the approaches adopted within the EAEU appear less systematically structured. Specifically, the WCO Transit Guidelines clearly stipulate the need for differentiation between types of guarantees, their scope, and the specific circumstances under which they are activated.

One of the principal obstacles to the effective functioning of customs transit within the EAEU is the presence of legal conflicts between the norms of the EAEU Customs Code, as a supranational source of law, and the national legal acts of member states. Despite the formal primacy of Union law, as established in Article 6 of the EAEU Treaty and the Customs Code, in practice, national customs control authorities often rely on their own regulatory frameworks, even where these conflict with Union-level provisions. These legal contradictions are particularly pronounced in administrative aspects of the transit procedure – for example, divergent approaches to the determination of escort conditions, the forms of documents certifying guarantees, or the mechanisms for electronic data exchange. Certain countries, such as Armenia and Kazakhstan, apply additional domestic regulations that are not fully consistent with the unified transit rules established by the EEC. This undermines the principle of a level playing field and erodes business confidence in the integrity and predictability of the transit system.

National courts of the EAEU member states interpret the provisions of the Customs Code inconsistently, resulting in legal conflicts and undermining the uniform application of the law. In some instances, decisions of the EEC are not recognised, creating institutional conflicts and complicating the resolution of transit-related disputes.

Transit control within the Union remains fragmented, with member states employing different inspection methods, leading to an asymmetrical burden on businesses[32]. The absence of mechanisms for mutual recognition of control results forces countries to duplicate procedures, thereby undermining the foundational principle of a single customs space. In contrast to the EU, the EAEU lacks both the institutional capacity to delegate customs control powers and a centralised risk management model, which increases administrative costs and reduces the overall efficiency of transit procedures[33,34].

It should also be noted that the underdeveloped regulatory framework for joint risk management in transit further diminishes control efficiency. The absence of standardised risk assessment algorithms, the limited exchange of analytical data between states, and the uneven technical capacity of customs authorities create conditions conducive to procedural violations and abuse.

In the current context of the digitalisation of foreign economic activity, one of the key factors influencing the efficiency of customs transit is the level of development of electronic document flow[35]. Within the EAEU, the electronic interaction between customs and transport authorities is regarded as a strategic

---

32 B. MATKARIMOV, A. BARLYBAYEV and D. KARIMOV, *Enhancing analytical precision in company earnings reports through neurofuzzy system development: A comprehensive investigation*, in *Journal of Electrical and Computer Engineering*, 2024, 2024, 8515203.

33 EUROPEAN COMMISSION, *Annual activity report 2022 – Taxation and Customs Union*, 2023 at <https://commission.europa.eu/publications/annual-activity-report-2022-taxation-and-customs-union_en>

34 L. GALCHYNSKY, A. SVYDENKO and I. VEREMENKO, *The agent-based model of regulation of retail prices on the market of petroleum products*, in *Polish Journal of Management Studies*, 2011, 3, pp. 136–147.

priority, with the potential to significantly reduce the administrative burden on businesses, enhance procedural transparency, and promote harmonisation with international standards.

The introduction of electronic transit declarations (ETDs) is stipulated in Articles 95-101 of the EAEU Customs Code. Since 2020, an electronic transit system based on blockchain technology has been launched within the framework of an experimental regime. Despite these initiatives, the state of digitalisation varies considerably among member states. For instance, Kazakhstan has developed a relatively stable integration system with the EEC's information platform, whereas Armenia's system remains incompatible with the integrated customs control infrastructure.

Particular attention should be given to the use of the e-CMR, which enables the complete elimination of paper documents in transit operations. To date, only Kazakhstan has officially recognised and begun implementing the e-CMR form within the framework of pilot projects.[36] However, the lack of legal adaptation in the EAEU Customs Code, coupled with the absence of mutual recognition of e-CMR across all Union members, significantly hinders its full-scale implementation.

The integration of e-CMR with other elements of transit documentation remains problematic. Reports by the EEC indicate that the current IT systems of member states do not consistently enable end-to-end tracking of documents in real time. As a result, there is often a need to duplicate documents in paper form, which undermines the benefits of digitalisation.

In comparison with EU practices – where e-CMR is already in active use within the framework of the unified digital infrastructure Electronic Freight Transport Information (eFTI) – it is evident that the EAEU remains at an early stage in implementing such integration[37]. This highlights the necessity of further

35 J. TETA and E. XHAFA, *The qualitative impact of foreign direct investment in the Albanian clothing industry*, in *Apuntes del Cenes*, 2024, 43(78), pp. 51–68.

36 S. KERIMKHULLE, S. KUTTYKOZHAYEVA, G. TURTKARAYEVA, T. SEITOVA, N. OSPANOVA and D. TOLEUBAY, *Using the fuzzy logic models for analysis of time phases of crude oil prices: Brent-Europe*, in *Lecture Notes in Networks and Systems*, 2025, 1489 LNNS, pp. 9–17.

37 S. BABAYEVA, N. ADILOVA, E. GOJAEVA and A. PASHAYEVA, *Green innovation as a factor of economic growth*, in *Lecture Notes in Networks and Systems*, 2024, 1251 LNNS, pp. 523–

developing regulatory frameworks to support digital transit procedures across the Union. Effective interoperability between the information systems of customs administrations is essential for the realisation of seamless customs transit within the EAEU. Although the EAEU Customs Code sets out the objective of creating a unified information platform, the actual level of technical integration between member states remains fragmented and uneven.

According to EEC reports from 2023, the most significant progress has been observed in Kazakhstan, where automated data transmission relating to customs declarations, risk management, and guarantees functions in a format approaching an integrated model. In contrast, Armenia and Kyrgyzstan exhibit limited compatibility between their national IT platforms and the EAEU's unified transit portal. This results in periodic failures in the registration of transit messages and leads to duplication of procedures.

Member states employ different technical protocols for interaction, lack common risk assessment algorithms, and utilise disparate national database structures, all of which hinder the ability to ensure end-to-end verification of transit routes. According to the World Bank, the absence of a centralised customs RMS with unified real-time information exchange remains a major obstacle.

An additional challenge lies in the uneven development of digital infrastructures across the Union. For instance, Kazakhstan has adopted a modular platform with Application Programming Interface (API) access for private-sector participants, whereas other countries continue to operate closed systems with limited integration with logistics operators, thereby complicating the implementation of the "single window" concept.

In 2023, a joint initiative – the EAEU Digital Transit Gateway – was launched. However, as Sahakyan notes, its full-scale deployment is hindered by both technical and political factors, including the absence of a regulatory framework for the cross-border exchange of customs information.

To comprehensively assess the level of digital transformation of transit procedures within the EAEU, a comparative analysis of the implementation status of key digitalisation components in different member states is warranted. Among the main indicators of digital progress in the transit sector are: the degree of inte-

531.

gration of electronic document flow, the availability and functionality of national risk management information systems, the use of electronic guarantees, and the degree of adaptation to international digital standards (e.g. e-CMR). The Figure 2 presents a visual representation of a conditional index of digitalisation in transit procedures across EAEU countries, based on open analytical reports, regulatory sources, and expert assessments.

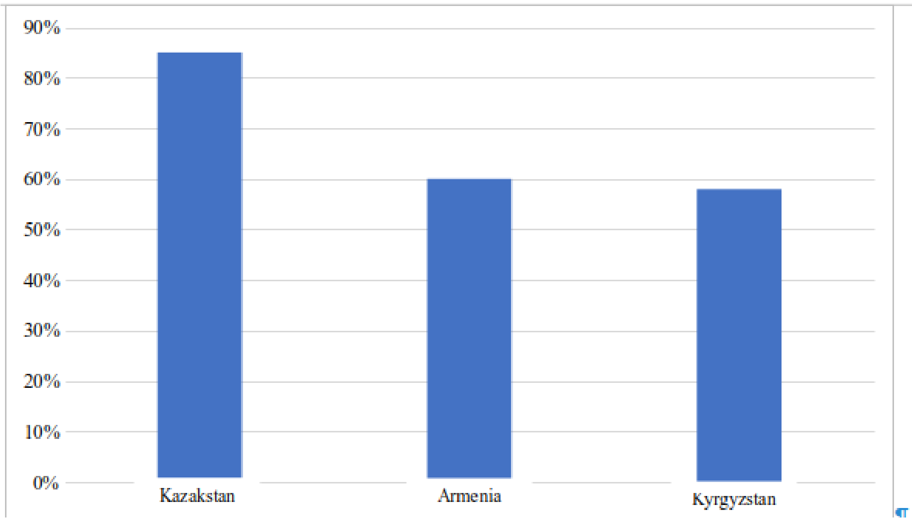


Fig. 2. Digitalisation index of transit procedures in the EAEU countries

[Source: compiled by the authors based on EEC, UNCTAD, WCO]

The RMS has become a key tool in the customs transit sector of the EAEU member states, enabling effective control over the movement of goods while reducing the administrative burden on bona fide participants in foreign economic activity. The primary function of the RMS is to identify potential offences or violations of customs legislation prior to the actual completion of customs procedures. Within the EAEU, the system is formally regulated by the Customs Code, although its implementation varies significantly among member states.

Within the framework of the integration area, efforts have been made to harmonise approaches to risk analysis and ranking, including the automated exchange of risk profiles between national customs administrations. However, as noted in the report by the EEC, only a limited number of countries have successfully implemented systems that conform to modern digital standards. For example, Kazakhstan has introduced a multi-level risk analysis model incorporating elements of machine learning, whereas in Armenia the RMS remains largely manual.

The main challenges include:

- asymmetry in the technical equipment of customs authorities;
- lack of full transparency in risk assessment algorithms;
- insufficient efficiency in the exchange of customs information among EAEU member states;
- limited application of advanced technologies such as blockchain and artificial intelligence in risk modelling.

In parallel, international organisations such as the WCO and UNCTAD advocate the transition to intelligent, risk-oriented platforms based on behavioural models and large volumes of structured and unstructured data. According to these recommendations, customs administrations should not only detect potential violations, but also undertake preventive forecasting through the analysis of supply chains and historical enterprise data.

3.3. Ways to harmonise and improve efficiency

One of the key prerequisites for the effective functioning of the transit system within the EAEU is the elimination of regulatory fragmentation among member states. Although the EAEU Customs Code formally unifies regulatory approaches to transit, the practical application of its provisions remains inconsistent across jurisdictions. This is reflected in the varied interpretation of rules, differing approaches to guarantee control, and disparities in the level of technical integration of electronic document management systems.

Regulatory unification must encompass both legal and technical dimensions of customs clearance. In particular, the harmonisation of guarantee procedures remains a subject of active discussion within the scientific and expert community. Studies focusing on the participation of smaller economies, such as Armenia and Kyrgyzstan, in the EAEU have shown that uncertainty in guarantee policies can negatively impact logistical stability and deter investment flows. The adoption of a unified approach to guarantee instruments could reduce transaction costs and enhance mutual trust between customs authorities.

Another critical area for reform is the standardisation of electronic document formats. At present, EAEU countries implement digital solutions in a fragmented manner, often lacking common technical standards. The introduction of a standardised transit declaration format and the mandatory adoption of the e-CMR could represent a significant step toward achieving full interoperability among information systems[38]. This would not only simplify customs clearance procedures but also greatly enhance the transparency and efficiency of data exchange.

In addition, the unification of the regulatory framework should encompass the standardisation of risk-based control procedures. At present, EAEU member states apply varying methodologies for risk analysis, which complicates the identification of systemic violations and the coordination of enforcement actions. Empirical studies have demonstrated that the implementation of a unified RMS with transparent criteria for the selection of inspection targets enhances the effectiveness of customs supervision and reduces the risk of corruption.

Equally important is the issue of legal interpretation. Divergent interpretations of identical provisions of the Customs Code hinder the assurance of legal certainty for transit participants. The establishment of a joint explanatory body under the auspices of the EEC could provide a unified approach to the application of customs law and help prevent legal conflicts in the future[39].

Finally, it is essential to ensure the synchronised implementation of international norms. In particular, the adaptation of the provisions of the WTO Agreement on Trade Facilitation, the TIR Convention, and the recommendations of the WCO should be carried out in a coordinated and consistent manner across all EAEU member states. Such alignment would help to reduce the gap between international obligations and domestic legal frameworks, while also improving the mutual compatibility of transit procedures with global practice.

---

38 V. BRYCH, R. SKRYNKOVSKYY, L. SHKVARCHUK, G. LIAKHOVYCH, R. SLAV'YUK and O. BORYSIAK, *Portfolio optimization of equity funds*, in *Proceedings – International Conference on Advanced Computer Information Technologies (ACIT)*, 2022, pp. 207–210.

39 M. BRAUN, *The European Union and the Eurasian Economic Union – Three rationalities of interaction and the problem of non-democratic regionalism*, in *Journal of European Integration*, 2024, 47(4), pp. 581–600.

The development of an electronic platform for transit support is a strategic priority for enhancing customs regulation within the EAEU. At the current stage, the Union is characterised by fragmented integration of digital solutions, with each member state implementing its own national initiatives, often with varying degrees of compatibility. This fragmentation creates barriers to data exchange, slows down transit processes, and complicates operational risk management. An effective electronic platform should serve as a unified environment for communication between national customs administrations, transit operators, guarantee institutions, and relevant supervisory authorities. It should facilitate the processing of transit declarations, verification of electronic guarantees, real-time monitoring of vehicle movements, and automated information exchange between the IT systems of member states.

A notable example of successful implementation of such a model is the European Common Transit System (New Computerised Transit System – NCTS), which operates within the EU and the European Free Trade Association (EFTA). It enables high-speed exchange of transit messages, full traceability of cargo flows, and a significant reduction in the need for physical inspections. The unification of the digital transit architecture in the EAEU, based on such a model, would substantially increase the efficiency of the transit space, improve procedural transparency, and strengthen mutual trust among member states.

Scientific literature also highlights the importance of incorporating blockchain technologies into the digital platform's architecture, as a means of ensuring the immutability of transit data and enhancing cybersecurity. In the long term, such a platform could lay the foundation for the creation of a "single digital window" for foreign economic activity, encompassing not only transit procedures but also related processes such as certification, veterinary and phytosanitary controls, and export support. The successful introduction of such a platform would require the adoption of a unified regulatory instrument at the EAEU level to govern its functional modules, interaction protocols, and administrative mechanisms. Without legal clarity and technical harmonisation, the platform's operation would be unfeasible, and its effectiveness would ultimately depend on the political will of all member states to cooperate and coordinate their efforts.

The development of a unified standard of law enforcement in the field of customs transit within the EAEU constitutes a key step towards the effective integration of the legal systems of its member states. At present, legal practice in the area of transit reveals substantial divergences between national approaches, particularly in the determination of carrier liability, the application of guarantee procedures, the implementation of control mechanisms, and the imposition of sanctions for violations of customs legislation. This fragmentation results in unequal business conditions, undermines mutual trust between customs administrations, and creates legal uncertainty for foreign economic operators.

A unified standard of law enforcement should be grounded in clearly defined principles: transparency, equality before the law, a preventive approach to control, the presumption of good faith on the part of foreign economic operators, and proportionality of liability. These principles ought to be codified in a supranational legal instrument – such as a code or general regulation – that would ensure uniform interpretation and application of transit-related legal norms across all jurisdictions.

The EU's experience demonstrates that legal convergence is attainable through sustained dialogue between customs administrations, the establishment of common training programmes for officials, the creation of shared databases of case law, and the formalisation of procedures for mutual recognition of control results[40,41]. This model may be adapted to the context of the EAEU by institutionally strengthening the role of the EEC as both a coordinator of law enforcement policy and an arbitrator in cases of legal conflict.

In addition, the development of a unified standard should be accompanied by the implementation of digital tools to ensure legal coherence: unified registers of violations, integrated electronic platforms for dispute resolution, and online monitoring of customs decisions in real time. These measures would not only enhance legal predictability but also increase the overall level of accountability of authorities to businesses. In the long term, the establishment of a unified law en-

40 A. LEONTYEV and K. KETNERS, *The improvement of decision-making in the Latvian tax system: Cases of irreducible incompatibility taking into account reliability, equity and efficiency criteria*, in *Intellectual Economics*, 2023, 17(2), pp. 322–343.

41 P.M. PANTEGHINI, *The capital structure of multinational companies under tax competition*, in *International Tax and Public Finance*, 2009, 16(1), pp. 59–81.

forcement framework for transit within the EAEU will represent a crucial step in the creation of a single economic space, in which transit is not merely a mechanism for the movement of goods, but also a key indicator of the Union's legal integration and institutional maturity. The findings of this study fully confirm the initial hypothesis that the legal regulation of transit within the EAEU is characterised by internal fragmentation and the incomplete implementation of international obligations, which collectively diminish its integration potential.

4. Discussion

The legal regulation of customs transit within the EAEU represents a central component of the Union's integration policy, contributing to the formation of a single economic space and facilitating the unhindered movement of goods. The results of the present study confirm that, despite the existence of a common legal framework, the degree of implementation of transit norms varies significantly among member states. These disparities are attributed to differences in technical capacity and the institutional characteristics of national customs administrations. The findings indicate that Kazakhstan stands out within the EAEU as having the highest level of digitalisation in transit procedures. This aligns with the conclusions of AL-Shboul, who demonstrated that the introduction of electronic monitoring systems and GPS-based controls leads to cost reductions and enhanced procedural transparency. In contrast, the situation in Armenia – characterised by limited digital integration and ongoing political challenges – corroborates the research of Hovhannisyan and Urutyan, who highlighted institutional barriers to the effective implementation of transit systems in countries facing geopolitical constraints.

Kyrgyzstan occupies an intermediate position, as confirmed by the empirical observations of Bekbolotova et al. and Kim[42], who noted that the integration of digital solutions into customs administration in the country has been inconsistent, with duplication of controls reducing the overall efficiency of transit procedures.

42 K. KIM, P. MARIANO and J. ABESAMIS, *Trade impact of reducing time and costs at borders in the Central Asia regional economic cooperation region*, in *Emerging Markets Finance and Trade*, 2021, 58(9), pp. 2602–2619.

Particular attention in the discussion should be paid to the application of the TIR Convention. Although all EAEU member states are parties to the Convention, its actual implementation has not aligned with the principles enshrined in the agreement[43]. As demonstrated by the studies of Zhunussova and Dulambayeva, Sahakyan, and Hovhannisyan and Urutyan, several countries exhibit uneven recognition of guarantees, impose additional border checks despite the presence of valid TIR carnets, and display varying levels of digital development in transport clearance. This reflects a structural weakness in the harmonised customs space. An important practical aspect concerns carrier liability. While EAEU customs legislation provides for financial or institutional guarantees to ensure compliance with customs obligations, recognition of these guarantees across member states remains inconsistent. As observed by Sahakyan and Bekbolotova et al., such inconsistencies – particularly in the context of non-state institutions – create legal uncertainty for businesses. This finding correlates with global trends described by Vasudevan and Manalaya[44], who argue that the effective integration of regional customs procedures is a critical factor in attracting countries to global value chains. In assessing the prospects for further harmonisation of the EAEU transit space, the Strategy for the Development of the EAEU Customs Space until 2025 must be considered. Despite its stated objective of integrating digital services, actual implementation remains constrained by technical, financial, and political barriers. Korwatanasakul[45] points out that the limited success of integration initiatives – combined with divergent institutional models among member states – significantly restrains the EAEU's potential to function as an effective transit corridor in the broader Eurasian region. Equally significant is the geopolitical dimension. As Boute[46] highlights, customs policy within the EAEU is often shaped by factors such as energy dependence, political pressure,

43 O. DENISSOVA and M.U. RAKHIMBERDINOVA, *Development of import substitution as a factor in ensuring food security in Kazakhstan*, in *Economy Strategy and Practice*, 2021, 16(2), pp. 107–115.

44 S. VASUDEVAN and S.B. MANALAYA, *Trade effects of Eurasian Economic Union and global production sharing: A gravity analysis*, in *International Economic Journal*, 2021, 35(2), pp. 223–241.

45 U. KORWATANASAKUL, *Revisiting Asian economic integration: Challenges and prospects*, in *Journal of the Asia Pacific Economy*, 2020, 27(2), pp. 199–222.

46 A. BOUTE, *Shaping the Eurasian gas market: The geopolitics of energy market regulation*, in *Geopolitics*, 2022, 28(5), pp. 2042–2073.

and asymmetrical national interests, complicating the coordination of a unified transit policy. A systemic weakness of the EAEU lies in the legal conflicts between supranational and national levels of regulation. Although the primacy of Union law is established under Article 6 of the EAEU Treaty, customs control practices in member states – particularly Armenia and Kazakhstan – have revealed instances where domestic procedures were applied in contradiction to EEC provisions. This regulatory imbalance, as noted by Arynov et al., has led to national courts rejecting the binding nature of EEC acts, thereby undermining legal certainty and creating an unstable environment for transit participants. Such unpredictability hinders the consistent application of law within the Union.

A similar problem was identified by Braun, who pointed to the absence of a unified legal space as a key factor slowing the pace of EAEU integration, emphasising that the formal existence of supranational norms does not guarantee their uniform enforcement by national customs authorities. In contrast to the EU – where a centralised judicial system ensures consistent interpretation and resolution of interjurisdictional disputes – the EAEU continues to demonstrate institutional fragmentation. This significantly diminished the effectiveness of the integration space. Another critical barrier to the functioning of transit within the EAEU is the uneven application of customs control and risk management procedures. While Kyrgyzstan continues to rely predominantly on physical inspections, other member states, such as Kazakhstan, have prioritised electronic control methods. The absence of mutual recognition of control results, repeated inspections, and divergent document processing practices have led to delays, undermined the principle of a "single customs space", and contributed to increased operational costs.

The digital transformation of customs transit in the EAEU has revealed severe fragmentation, limiting the Union's integration potential. Despite the formal introduction of e-transit in 2020, the deployment of digital tools such as blockchain and e-CMR has been uneven: Kazakhstan has implemented automated data exchange systems, while Armenia and Kyrgyzstan continue to struggle with the technical incompatibility of their national IT systems with the EEC's unified platform. In this context, Zhusupbaev and Toktobaev emphasise that Kyrgyzstan's implementation of international commitments, such as the TIR

Convention, has often been formal rather than substantive, lacking the necessary investment in digital infrastructure. The findings of Rangsimaporn[47] position Kazakhstan's foreign policy within a broader multi-vector strategy that includes cooperation with Southeast Asian countries, suggesting that improvements in transit procedures within the EAEU – particularly the development of digital infrastructure and the mutual recognition of electronic documentation – could significantly strengthen logistical links with key partners such as Singapore, Malaysia, and Vietnam. The non-recognition of e-CMR at the regulatory level in most EAEU member states reflects weak political and legal coherence, undermining the practical utility of digital formats. As Eder[48] notes, a fundamental barrier to institutional convergence is the persistent desire among member states to preserve administrative sovereignty, which inhibits technical unification, even in strategic sectors such as logistics. Korwatanasakul similarly argues that technical compatibility is as crucial as political will in advancing regional integration.

According to the OECD, only Kazakhstan has adopted an open architecture with API access, enabling integration with private-sector platforms. In contrast, other member states continue to operate closed systems, which obstruct businesses' participation in digital transit infrastructure. This imbalance is further highlighted by Shingal[49], who notes that the lack of flexible, internationally compatible digital tools hampers responsiveness to crisis situations (e.g. the COVID-19 pandemic), thereby weakening the resilience of regional transit chains. Given these persistent disparities, the initiative to create a Digital Transit Gateway is of particular strategic importance. However, as Sahakyan observes, the project's implementation is hindered by the absence of a unified regulatory framework for cross-border customs data exchange – an issue that also signals deeper political risks embedded within the integration process. The customs RMS across the EAEU has similarly been implemented unevenly. While Kazakhstan has introduced machine learning elements into its RMS, Armenia continues to

47 P. RANGSIMAPORN, *Southeast Asia in Kazakhstan's omnidirectional hedging strategy*, in *Problems of Post-Communism*, 2021, 70(3), pp. 277–289.

48 J. EDER, *Moving towards developmental regionalism? Industrial cooperation in the Eurasian Economic Union from an Armenian and Belarusian perspective*, in *Post-Communist Economies*, 2020, 33(2–3), pp. 331–358.

49 A. SHINGAL, *The COVID-19 shock and services trade decline: Potential for digitalization matters*, in *Applied Economics*, 2023, 56(28), pp. 3349–3370.

rely on manual processing without digital integration. The lack of a centralised model and the absence of real-time analytics sharing between member states have created an unlevel playing field for businesses. Furthermore, the WCO's recommendations for the adoption of intelligent, predictive risk platforms have not yet been operationalised within the Union. These limitations confirm the findings of Kemme et al.[50], who argued that technical fragmentation undermines transit efficiency and reduces the investment attractiveness of the Union.

Furthermore, the legal incompatibility of data protocols between member states renders the exchange of risk profiles unfeasible – an observation also supported by De Lombaerde et al.[51] and UNCTAD. As Di Cintio et al.[52] have shown, such legal uncertainty disincentivises direct market transactions and deters investment. The broader fragmentation observed aligns with the conclusions of Malle et al.[53], who highlighted a lack of regulatory logic and technical coordination within the EAEU. Similarly, Husseini et al.[54] identified that infrastructural and digital disjointedness severely limits the effectiveness of transit integration – even in the formal presence of an economic union. Therefore, without the unification of digital standards, coordination of risk management, and enhanced interstate cooperation, the EAEU will be unable to realise its logistical potential.

The literature review by Bekbolotova et al. and Davtyan highlights the particularly destructive impact of legal uncertainty on the economies of smaller member states such as Armenia and Kyrgyzstan, where unpredictable guarantee policies increase the risks for transit businesses and erode trust in the supranational system. The experience of the EU demonstrates that resolving such challen-

---

50 D.M. KEMME, Y. AKHMETZAKI and B.M. MUKHAMEDIYEV, *The effects of the Eurasian Economic Union on regional foreign direct investment and implications for growth*, in *Journal of International Trade & Economic Development*, 2021, 30(5), pp. 643–660.

51 P. DE LOMBAERDE, K. MOLDASHEV, I. QORABOYEV and S. TAGHON, *Strategic responses of regional economic organizations to the Chinese Belt and Road Initiative: The cases of ASEAN, EAEU, and EU*, in *Asia Pacific Business Review*, 2022, 30(2), pp. 399–419.

52 M. DI CINTIO, S. GHOSH and E. GRASSI, *Exports, irreversible investments and product market uncertainty: The role of trade intermediaries*, in *Global Economic Review*, 2023, 52(4), pp. 290–312.

53 S. MALLE, J. COOPER and R. CONNOLLY, *Greater Eurasia: More than a vision?*, in *Post-Communist Economies*, 2020, 32(5), pp. 561–590.

54 S. HUSSEINI, A.M. KHALID and G. PREMARATNE, *Assessing infrastructure and trade connectivity through network analysis: Evidence from BRI countries*, in *China Economic Journal*, 2024, 17(2), pp. 259–284.

ges requires not only harmonisation of the regulatory framework but also the establishment of a unified enforcement mechanism – comprising case law, legal instruments, and mutual recognition procedures. Another critical element of integration is the development of an electronic platform for transit support. Currently, the EAEU suffers from only partial technical compatibility between national information systems, which restricts the potential of digitalisation. The NCTS provides a successful model of a single platform that ensures end-to-end cargo traceability and reduces administrative barriers.

According to Sahakyan, the EAEU lacks a functioning equivalent at an adequate level of performance. Ongoing discussions on blockchain implementation reveal significant potential for enhancing cybersecurity and ensuring data immutability. However, the effectiveness of such innovations is contingent upon regulatory backing and the political will of member states to coordinate their IT policies. As emphasised by Glouftsios and Kandogan[55], the deployment of advanced digital standards is feasible only through political consolidation and institutional support. A separate but essential direction for development is the establishment of a unified standard for law enforcement. This would eliminate discrepancies where identical transit cases are interpreted differently across jurisdictions. A coordinated framework for determining responsibility, control procedures, sanctions, and the rights of transit participants would substantially enhance legal certainty and reduce the administrative burden. The experience of the EU, as analysed by Herzog[56] and Hartwell[57], illustrates that such harmonisation can be achieved through joint training centres, integrated databases, and transparent procedures for dispute resolution. In sum, the discussion of the research findings underscores that the creation of a coherent, efficient, and digitally oriented transit system within the EAEU requires deep regulatory unification, technical standardisation, and political coherence. These components are essential not only for accelerating logistics processes but also for strengthening the institutional capaci-

55 Y. KANDOGAN, *Former Soviet Union Republics' emerging place in international institutions network and their international trade patterns after the disintegration*, in *Journal of East-West Business*, 2023, 29(2), pp. 138–164.

56 T. HERZOG, *Immemorial (and native) customs in early modernity: Europe and the Americas*, in *Comparative Legal History*, 2021, 9(1), pp. 3–55.

57 C.A. HARTWELL, *Part of the problem? The Eurasian Economic Union and environmental challenges in the former Soviet Union*, in *Problems of Post-Communism*, 2021, 69(4–5), pp. 317–329.

ty of the Union in regional integration and its engagement with global trade networks.

5. Conclusions

This study has provided a comprehensive analysis of the legal framework governing customs transit within the EAEU. It has been established that, despite being based on a unified Customs Code, the current regulatory framework remains heterogeneous in its national implementation, thereby complicating the administration of transit and impeding the establishment of a common customs space. The findings confirm the hypothesis that the legal regulation of transit within the EAEU is fragmented and does not ensure the full implementation of international obligations – ultimately reducing the Union's integration potential.

The most problematic areas identified include: legal conflicts between national regulations and acts of the EEC, inconsistency in the application of guarantees and carrier liability, and the absence of unified control mechanisms. A comparison of the EAEU Customs Code with international instruments – such as the WTO's Agreement on Trade Facilitation, the Transit Recommendations of the WCO, and the TIR Convention – revealed only partial compliance. This partial alignment limits the EAEU's integration into global transport and logistics networks. The digitalisation of transit procedures also shows uneven development across the Union. The existing electronic infrastructure fails to ensure full interoperability between national systems, negatively affecting the speed, transparency, and oversight of customs processes.

The developed indicative digital maturity index revealed significant disparities among member states, particularly in their use of electronic document management, automated RMS, and integration into the e-CMR platform. The analysis further demonstrated that, despite several common initiatives, their implementation remains asynchronous, thereby reducing the overall efficiency of the transit mechanism. Based on these findings, several proposals are advanced to support the harmonisation of transit regulation within the EAEU. These include the unification of provisions concerning carrier liability, the creation of a supranational digital portal for transit support, and the establishment of a single standard of law enforcement across the Union's customs administrations.

Among the main limitations of the study are the fragmentation of official statistics across member states and limited access to internal regulatory documents concerning the practical implementation of transit procedures. Future research should prioritise the empirical evaluation of digital tools used in transit administration, as well as the modelling of a unified architecture for an integrated customs platform.

Alymbek Asylbekov
Postgraduate Student
Institute of State and Law
National Academy of Sciences of the Kyrgyz Republic
asylbekovalymbek66@gmail.com
Zarina Abdykadyrova
Postgraduate Student
Department of Theory and History of State and Law
International University named after K.Sh. Toktomamatov
z.abdykadyrova@outlook.com
Syrgak Kenzhebaev
Doctoral Student
Institute of State and Law
National Academy of Sciences of the Kyrgyz Republic
s-kenzhebaev@hotmail.com
Abai Zurdinov
PhD
Institute of State and Law
National Academy of Sciences of the Kyrgyz Republic
a_zurdinov@outlook.com
Kamila Mateeva
Associate Professor
Faculty of Law
American University of Central Asia
kmateeva@hotmail.com

STATE, LAW, AND SOCIETY: MECHANISMS OF INTERACTION AND PRESSING ISSUES

Abstract

The purpose of the study was to investigate the mechanisms of interaction between the state, law, society, and to identify the challenges of their functioning. To achieve this goal, an analysis of the current legislation of Kyrgyzstan regulating the interaction of the state, law, and society was carried out, with an emphasis on regulatory mechanisms for civil participation.

As a result of the study, it was found that a model of interaction between the state, law, and society is being formed in Kyrgyzstan, characterised by a gradual transition to partner forms of governance. The creation of civil society institutions, the active participation of non-governmental groups in the implementation of social programmes, and the normative tools for public participation in administrative decision-making are the main mechanisms for such interaction.
The analysis of the current legislation showed the existence of a legal framework for interaction between state bodies and citizens, in particular, through public councils, consulting procedures, and electronic participation platforms.
However, other issues were noted, including the need to strengthen accountability and transparency processes, the lack of a legal culture in some areas, and limited access to participatory mechanisms. Kyrgyzstan's legal system is gradually adapting to the principles of the rule of law, including through the reform of the judiciary, digitalisation of public services, and the implementation of international human rights standards.
However, a significant part of the population remains excluded from real legal influence on public policy due to a lack of access to quality legal information, legal education, and protection mechanisms.

KEYWORDS: State apparatus – Civil society – Legal mechanisms – Democracy – Institutions of power

1. Introduction

The relevance of the study of mechanisms of interaction between the state, law, and society is conditioned by transformational processes in modern socio-political systems, the need to ensure an effective balance between state institutions and civil society, and the need to improve legal mechanisms for regulating these relations in the context of global challenges. Understanding these relationships is key to building stable democratic systems and ensuring the sustainable development of society.

The study by Anisov et al.[1] considered the specifics of the functioning of democratic institutions in the Kyrgyz context, analysing their effectiveness and unique features in the context of post-socialist transformation. According to the researchers, on the one hand, Kyrgyzstan has created the foundations of a democratic system consolidated in the Constitution, a system of separation of powers operates, and basic rights and freedoms of citizens are recognised. The study found that despite the nominal establishment of democratic institutions, the country still has difficulties in implementing constitutional norms. This is relevant given the lack of independence of the judiciary, the insufficient system of checks and balances, and the low level of participation of civil society in political processes. However, Knox and Sharipova[2], having studied the dynamics of interaction between authoritarian tendencies and the development of civil society in the Central Asian region, argued that in practice, problems such as the lack of a developed culture of legal responsibility, inadequate law enforcement, low public confidence in the court and lack of openness in the activities of official bodies often hinder communication between the state, the legal system, and civil society. This makes it difficult for the rule of law to function effectively and prevents people from fully participating in decision-making processes.

The study by Zadayev[3] revealed the features of leadership development and democratisation processes in Kazakhstan and Kyrgyzstan through a comparative analysis of their political systems. Consequently, democratic processes in the Kyrgyz Republic are influenced by the relationship between the population and the state apparatus. Effective cooperation between these institutions helps to increase accountability, transparency, and openness of government, and strengthen public confidence in government structures as part of the creation of a democratic

1 R. ANISOV, G. OMOROVA, U. YUSUPOV, N. NARMATOV, A. KOKOEVA, A. BERENALIEVA, and Z. ABDULLAEVA, Democracy in Kyrgyzstan: Institutions and their features. *Open Journal of Social Sciences*, 9(12), 2021, 94-102. https://doi.org/10.4236/jss.2021.912008.

2 C. KNOX, and D. SHARIPOVA, Authoritarianism and civil society in Central Asia: Shifting boundaries. *Journal of Civil Society*, 20(2), 2024, 109-129. https://doi.org/10.1080/17448689.2024.2324874.

3 E. ZADAYEV, Leadership and democratization in Kazakhstan and Kyrgyzstan: Comparative analysis of political systems of post-Soviet countries. *International Journal of Political Studies*, 10(2), 2024, 60-77. https://doi.org/10.25272/icps.1506641.

state.

According to Axyonova and Tsertsvadze[4], on the relationship between democratisation processes in transition countries, noted that democracy is based on a variety of opinions and interests that can be taken into consideration when citizens participate in decision-making processes. The state and citizens work together to strengthen institutions of democratic governance and protect human rights and freedoms. Public control allows identifying shortcomings in the activities of state bodies, reducing the likelihood of corruption, and improving the efficiency of management. An important role in increasing the transparency and accountability of government structures, as stated by Junusbekova and Khamitov[5], public forums, public councils attached to state bodies, and citizen participation in the creation of laws and regulations are some of the mechanisms that contribute to this. The democratisation of society is facilitated by the participation of citizens in management processes through Initiative projects, monitoring groups, petitions, and dialogue platforms. According to the conclusions of Lewis and Sagnayeva[6], civic engagement increases the legitimacy of decisions made and reduces social tension, as the population feels important in the country's development.

Investigating the features of civil society development in post-Soviet Kyrgyzstan, Pierobon[7] noted that the state apparatus and civil society, working in partnership, can more effectively address issues such as poverty, unemployment, and inequality. Joint implementation of social programmes allows considering the real needs of the population and ensuring a fair distribution of resources.

4 V. AXYONOVA, and T. TSERTSVADZE, Democratization and human rights. In: S. MAYER, J. LEMPP (Eds.), *The EU as an Actor in Central Asia: External Impacts, Regional Responses*. Cham: Palgrave Macmillan, 2024, 213-240. https://doi.org/10.1007/978-3-031-51354-1_9.

5 G. JUNUSBEKOVA, and Z. KHAMITOV, Anti-corruption monitoring in the public procurement management system in the Republic of Kazakhstan. *Public Policy and Administration*, 20(4), 2021, 410-424. https://doi.org/10.13165/VPA-21-20-4-05.

6 D.G., LEWIS, and S. SAGNAYEVA, Corruption, patro.nage and illiberal peace: Forging political settlement in post-conflict Kyrgyzstan. *Third World Quarterly*, 41(1), 2020, 77-95. https://doi.org/10.1080/01436597.2019.1642102.

7 C. PIEROBON, The development of civil society in post-Soviet Kyrgyzstan. *Annals of Ca' Foscari. Oriental Series*, 54, 2018, 107-134. http://doi.org/10.30687/AnnOr/2385-3042/2018/01/006.

The study by Idowu[8] demonstrated how democracy and sustainable development are linked, highlighting the important ways they interact to effectively build a civic position. Consequently, the development of an active civic position, in turn, strengthens democratic institutions and creates the basis for sustainable development of the state. Dialogue between government agencies and citizens helps to prevent conflicts and resolve disputes peacefully. The institutionalisation of such interaction contributes to the cohesion of society around common goals, strengthening national unity and stability.

Thus, the purpose of the study was to analyse the mechanisms of interaction between the state, law, and society in Kyrgyzstan in the current conditions of global changes. Research objectives: to reveal the essence of the concepts of "state", "law", and "society" in the context of their interrelation, to characterise the main mechanisms that ensure effective interaction between the state, law, and society; to investigate contemporary global and local challenges that affect this interaction (in particular, political, economic, technological, legal, and social factors).

2. Methodology

The analysis of the relationship between the state, law, and society was carried out using an integrated approach, which involves the use of various theoretical methods and concepts. The research methodology was based on a wide range of tools, including general scientific and specialised methods. The systematic approach as a fundamental method of research allowed considering the state, law, and society as elements of a single system of political and legal relations in Kyrgyzstan. This method was used to determine how different mechanisms of interaction affect each other and the overall effectiveness of the public administration system.

Using the method of theoretical analysis, the conceptual foundations of interaction between the state, law, and society as interrelated elements of a single system were investigated. In particular, the study analysed the mixed model of state administration of Kyrgyzstan (a combination of centralised and decentrali-

8 S.O. IDOWU, Democracy and sustainable development: Emerging links for effective citizenship development strategic implementations. *Humanities, Management and Social Sciences*, 3(2), 2023, 145-165.

sed elements), the Romano-German paradigm of legal regulation of public relations and mechanisms for ensuring a balance between state power and civil society. Special attention was paid to the study of theoretical aspects of democratisation, the rule of law and the development of the rule of law in a transitional society.

Structural and functional analysis was applied to investigate the functions of each mechanism of interaction, in particular, advisory, control, and representative functions, and to investigate their role in ensuring the effective functioning of the political and legal system of Kyrgyzstan. This method was used to clarify the functions that public discussions perform in the process of making state decisions, determine the role of public-private partnership in the modernisation of the country's economy, and study the impact of state support for civil initiatives on the development of democratic processes. Using structural and functional analysis, it was also planned to investigate the dysfunctions of existing mechanisms and their negative impact on the effectiveness of interaction.

Among special legal methods, the key role was assigned to the formal legal method, which was used to analyse the regulatory framework governing relations between the state and civil society. The analysis included the Constitution of the Kyrgyz Republic[9], laws on public associations, public-private partnerships, and other relevant regulations. The source base was based on: the Constitution of the Kyrgyz Republic, the Law No. 241 of the Kyrgyz Republic "On Regulatory Legal Acts of the Kyrgyz Republic"[10], the Order No. 45-r of the Cabinet of Ministers of the Kyrgyz Republic "On the Unified Portal for Public Discussion of Draft Regulatory Legal Acts of the Kyrgyz Republic"[11], the Law No. 98 of the Kyrgyz Republic "On Public-Private Partnership"[12], the Resolution No. 353 of the Cabinet of Ministers of the Kyrgyz Republic "On Approval of the Program

9 Constitution of the Kyrgyz Republic, 2021. https://cbd.minjust.gov.kg/1-2/edition/1202952/ru.

10 Law No. 241 of the Kyrgyz Republic "On Regulatory Legal Acts of the Kyrgyz Republic", 2009. https://cbd.minjust.gov.kg/202591/edition/1086595/ru.

11 Order No. 45-r of the Cabinet of Ministers of the Kyrgyz Republic "On the Unified Portal for Public Discussion of Draft Regulatory Legal Acts of the Kyrgyz Republic", 2023. https://cbd.minjust.gov.kg/219458/edition/1224828/ru.

12 Law No. 98 of the Kyrgyz Republic "On Public-Private Partnership", 2021. https://cbd.minjust.gov.kg/112275/edition/1077389/ru.

for the Development of Public-Private Partnerships in the Kyrgyz Republic for 2022-2026"[13]. Formal legal analysis revealed gaps and contradictions in the legislation. The synthesis method was used to generalise the results obtained and develop a holistic view of the mechanisms of interaction between the state, law, society, and to develop practical recommendations.

3. Results

In the contemporary society of a democratic country, interaction between the state, law, and citizens determines the level of legal culture, stability of the political system, and social cohesion. In Kyrgyzstan, these relations have special features that are shaped by historical events, changes in political regimes, and administrative and legislative reforms. Before the country gained independence from the Soviet Union, a series of revolutions led to changes in the state (the Tulip revolution in March 2005 led to the overthrow of president Askar Akayev and the rise to power of Kurmanbek Bakiyev; the April revolution in April 2010 against President Kurmanbek Bakiyev; the 2020 political crisis began as protests against the previous results of the Kyrgyz parliamentary elections held on October 4). Legislative changes were irregular, civil society institutions collapsed, and the constitutional system became unstable. The way government interacted with society was also significantly influenced by regional differences and the clan structure of social relations, which encouraged paternalistic tendencies and hindered the development of horizontal social ties.

The state performs traditional functions: it ensures public order, implements foreign and domestic policy, organises the system of government bodies, and carries out law-making activities.[14] In turn, the law serves as a guarantee for the preservation of individual rights and freedoms, and a regulatory tool. It sets the foundations for the functioning of the state, restricts its interference in personal affairs, and creates rules for social interaction. Society in Kyrgyzstan is gra-

13 Resolution No. 353 of the Cabinet of Ministers of the Kyrgyz Republic "On Approval of the Program for the Development of Public-Private Partnerships in the Kyrgyz Republic for 2022-2026", 2022. https://cbd.minjust.gov.kg/7-21632/edition/1173955/ru.

14 J. KOSTRUBIEC, The role of public order regulations as acts of local law in the performance of tasks in the field of public security by local self-government in Poland. *Lex localis – Journal of Local Self-Government*, 19(1), 2021, 111-129.

dually moving from paternalistic models to more active participation in the political and legal life of the country.[15] Examples include the growth of non-governmental organisations, the development of civil society, and the growing use of social media and media as tools of public control. Elections, petitions, public hearings, and public oversight are particularly important ways that people can influence the state.

Law, as a demonstration of state will, plays the role of the main tool for legitimising power, ensuring stability and protecting human rights.[16] However, the development of public legal knowledge and the ability of state institutions to implement these norms are just as important for the success of legal norms as their formal presence. This is where the main challenge manifests itself – the gap between the law and reality, when formally established rights are not always guaranteed in everyday life. Society, for its part, is not a passive object of the national policy. On the contrary, it actively declares its needs, participates in decision-making processes, forms social requests, and requirements for the authorities. The growth of civic activity, the emergence of new forms of self-organisation, the development of digital communication platforms – all this transforms the classic model of interaction between the state and society.[17,18]

Notably, the term "citizens", in the context of this study, refers to civil society, that is, active participants in socio-political life, both potential and current. In this regard, it is worth pointing out what is meant by the term "civil society": civil society is a set of public institutions, organisations, and associations independent of the state, and active citizens who express and protect the interests of citizens, promote their participation in state governance and control over power.

15 A. MAMBETALIEV, *Language policies, attitudes, and beliefs in Kyrgyzstan*. Veszprem: University of Pannonia, 2022.

16 S. CARDENAS, and R.K. ROOT, *Human Rights in Latin America: A Politics of Transformation*. Philadelphia: University of Pennsylvania Press, 2022. https://doi.org/10.2307/j.ctv2g7v1sq

17 N. YESSIMOV, N. IZMAILOVA, and D. YESSIMOV, Study of psychological satisfaction of population with services of the primary health care integrated into public health. *Journal of Intellectual Disability – Diagnosis and Treatment*, 8(4), 2020, 662–672. https://doi.org/10.6000/2292-2598.2020.08.04.9.

18 E. XHAFA, J. TETA, D.I. PHILIPPOV, E.V. KOSTYRIN, S. LEELANG, I.V. NIKOLAEVA, M.S. MARAMYGIN, N.V. RUBAN-LAZAREVA, I. MUDA, and O.V. DUDNIK, Private health insurance in the post-pandemic era: Spatial econometric market development analysis. *Emerging Science Journal*, 7(6), 2023, 2080–2096. https://doi.org/10.28991/ESJ-2023-07-06-013.

In other words, civil society is a space where people can unite based on common interests, values, and goals to solve social, political, and economic issues without direct state intervention. The main regulation that establishes fundamental rights and obligations, the principles of governance, and the basis for interaction between society and the state is the Constitution of the Kyrgyz Republic[19], which provides for freedom of association, expression of will, participation of citizens in state governance personally or through representatives.

Any public relations, including relations between the state apparatus and citizens, should be based on certain provisions, general principles, that is, principles. These principles are shown in Table 1.

Table 1. Basic principles on which relations between the state apparatus and citizens are based

Principle	Content of the principle
Interaction (partnership)	The state and citizens should act as partners, ensuring cooperation, dialogue, and consideration of the interests of both parties in the decision-making process.
Transparency	The activities of state authorities should be open and understandable for citizens; access to public information and decisions of the authorities should be ensured.
Responsibility	Public authorities and officials should be held accountable for their actions or omissions; provides for monitoring and response mechanisms.

[Source: compiled by the authors.]

These three principles form the basis for the creation of a state governed by the rule of law in which citizens and government engage in formal interaction, while promoting mutual trust, cooperation, and transparency. They contribute to the creation of an effective system of governance and development of society, maintaining a balance between the rights of individuals and the responsibilities of the state.

The principle of interaction involves active cooperation between government agencies and citizens to achieve common goals.[20] This means that citizens

19 Constitution of the Kyrgyz Republic, 2021. https://cbd.minjust.gov.kg/1-2/edition/1202952/ru.

20 O. TSISINSKA, and N. PODOLCHAK, Mechanisms and principles of interaction between public administration entities in cross-border cooperation. *Scientific Journal of Polonia*

should be able to actively participate in decision-making processes, be involved in political and social initiatives, and have access to mechanisms to influence public policy. Interaction between citizens and state bodies should not be limited only to formal contacts, but should also include constructive dialogue, exchange of opinions, and joint solution of social problems.[21] One of these methods of interaction is to conduct public discussions during the adoption of laws and regulations. Thus, according to the Law No. 241 of the Kyrgyz Republic[22], draft normative legal acts that directly have consequences for individuals and legal entities regarding their rights and freedoms, and those that control entrepreneurship, are posted on the official web portal of the regulatory body for public discussion. Draft legislative acts are published in the mass media by decision of the regulatory body, in the absence of an official portal of the body and in cases permitted by law.

In addition to the above-mentioned law, the Order No. 45-r of the Cabinet of Ministers of the Kyrgyz Republic[23] concerning the functioning of the service on the official website of the Cabinet of Ministers of the Kyrgyz Republic entitled "Unified Portal for public discussion of draft laws and regulations of the Kyrgyz Republic" was also adopted. This document states that state bodies are obliged "no later than ten working days from the date of completion of public discussion of the draft regulation to provide answers on the Unified Portal to citizens and organisations that posted comments on the discussed draft regulation".

This format of partnership between state bodies and citizens is certainly a positive experience for Kyrgyzstan. The specific process of public discussion, including requests for a requirement or the possibility of considering public opinion, is not defined by any regulatory act. Without such a process, there is a pos-

University, 55(6), 2022, 200-208. https://doi.org/10.23856/5526.

21 E. SHAHINI and E. SHAHINI, The economic and political legacy of Trump's first term: Implications for the second presidency. *Politics and Policy*, 53(5), 2025, e70066. https://doi.org/10.1111/polp.70066.

22 Law No. 241 of the Kyrgyz Republic "On Regulatory Legal Acts of the Kyrgyz Republic", 2009. https://cbd.minjust.gov.kg/202591/edition/1086595/ru.

23 Order No. 45-r of the Cabinet of Ministers of the Kyrgyz Republic "On the Unified Portal for Public Discussion of Draft Regulatory Legal Acts of the Kyrgyz Republic", 2023. https://cbd.minjust.gov.kg/219458/edition/1224828/ru.

sibility that public opinions will not be considered at all, and in this case, participation will simply become insignificant.

It is also necessary to highlight such a form of cooperation as public-private partnership, which allows civil and business structures to participate in the implementation of socially significant projects, for example, in the field of education, healthcare, and ecology. Thus, Law No. 98 of the Kyrgyz Republic[24] was adopted, in addition, the Resolution No. 353 of the Cabinet of Ministers of the Kyrgyz Republic[25] was adopted.

Law No. 98 of the Kyrgyz Republic[26] sets out the legal, economic, and organisational basis for the functioning of public-private partnerships in the state. This regulation covers the procedures for initiating, preparing, conducting tenders, and implementing PPP projects. Special attention should be paid to a clear definition of the working conditions of state authorities in this area. The Law introduces the generalised concept of "PPP project" as the main form of cooperation. The document also regulates detailed mechanisms for selecting private partners through competitive procedures with certain criteria, which contributes to transparency and efficiency of this process.

Simultaneously, the analysis reveals some shortcomings in the legal regulation, in particular, this is conditioned by the lack of detailed information on the mechanisms for monitoring the fulfilment of obligations by the parties in the project implementation process, which can lead to problems in the practical application of the norm. In general, Law No. 98 of the Kyrgyz Republic (2021) provides the necessary legal framework for the development of PPPs in Kyrgyzstan, but its effectiveness will largely depend on the quality of bylaws and the practice of their application.

The public-private partnership development programme in the Kyrgyz Republic for 2022-2026 is a strategic document that aims at institutional chan-

---

24 Law No. 98 of the Kyrgyz Republic "On Public-Private Partnership", 2021. https://cbd.minjust.gov.kg/112275/edition/1077389/ru.

25 Resolution No. 353 of the Cabinet of Ministers of the Kyrgyz Republic "On Approval of the Program for the Development of Public-Private Partnerships in the Kyrgyz Republic for 2022-2026", 2022. https://cbd.minjust.gov.kg/7-21632/edition/1173955/ru.

26 Law No. 98 of the Kyrgyz Republic "On Public-Private Partnership", 2021. https://cbd.minjust.gov.kg/112275/edition/1077389/ru.

ges in the mechanisms of cooperation between the public and private sectors in key sectors of the economy. The legal basis of this document is based on the Law No. 98 of the Kyrgyz Republic[27] and provides for the creation of specialised institutional structures for project coordination. The key component is the development of the regulatory framework and standardisation of the processes of selection and implementation of partnership projects. This regulation provides for the attraction of about USD 2 billion of private investment over five years through various financial mechanisms, such as concession agreements, joint ventures, and contract management. However, the programme has certain declaratively formulated targets without a detailed explanation of their reach and realism in the Kyrgyz economy.

However, the programme lacks clear criteria for evaluating the effectiveness of its implementation, and mechanisms for making changes in case of unforeseen circumstances. It demonstrates Kyrgyzstan's intention to renew its economy by attracting private investment, but requires significant improvements in implementation tools and increased institutional capacity to achieve effective public-private interaction.

Another important regulatory document that ensures the participation of citizens and the state in the implementation of socially important projects is the Law No. 70 of the Kyrgyz Republic "On State Social Procurement"[28], which consolidated the institutional framework for democratising social policy through the involvement of non-governmental organisations in solving social issues. According to Article 8 of this Law, state bodies, acting as customers of social services, must form a social order on the basis of competitive selection. The state undertakes to ensure transparency of the selection processes of performers and control the quality of services provided, and state structures, in turn, are responsible for financing approved projects and monitoring their implementation, which forms a system of accountability in the social sphere.

27 Law No. 98 of the Kyrgyz Republic "On Public-Private Partnership", 2021. https://cbd.minjust.gov.kg/112275/edition/1077389/ru.

28 Law No. 70 of the Kyrgyz Republic "On State Social Procurement", 2017. https://cbd.minjust.gov.kg/111577/edition/1268503/ru.

The mechanism of interaction between the state and civil society is organised through a competitive selection system regulated by Article 10, contractual regulation of relations in accordance with Article 11 and mandatory reporting on the results of implementation in accordance with Article 14. Based on this system, relations between the state and public organisations become more open and understandable, which makes it possible to control the use of budget funds and improve the quality of social services provided.

The importance of this law for the development of civil society lies in creating conditions for non-governmental organisations so that they can receive state funding for the implementation of socially important projects. This not only strengthens the financial basis of the third sector, but also increases the role of public organisations in solving public problems, forming partnerships with the authorities and contributing to the decentralisation of the state's social policy. State support for public initiatives, including financing social projects, grant programmes and creating a favourable environment for the development of volunteerism, is one of the methods of attracting citizens and authorities.[29] Currently, such a partnership is not presented as a systemic phenomenon, although the Decree of the President of the Kyrgyz Republic No. 221 "On the National Strategy of Development of the Kyrgyz Republic for 2018-2040"[30] indicates that through the mechanisms of transparent, competitive financing, the state policy for the development of civil society supports initiatives of citizens aimed at promoting socially useful ideas and projects, providing society with requested services, etc. The state will work to create conditions that will allow every citizen, community, and organisation to implement their initiatives for the development of their city, village, and region. Thus, partnership relations between citizens and the state apparatus in the Kyrgyz Republic are at an early stage, certain measures have been taken in this area, but they need to be developed, including through regulatory changes. Such development contributes to more effective government, increases

29 J. BEQIRAJ, and L. MOXHAM, Reconciling the theory and the practice of the rule of law in the European Union: Measuring the rule of law. *Hague Journal on the Rule of Law*, 14(2), 2022, 139-164. https://doi.org/10.1007/s40803-022-00171-z.

30 Decree of the President of the Kyrgyz Republic No. 221 "On the National Strategy of Development of the Kyrgyz Republic for 2018-2040", 2018. https://stat.gov.kg/ru//ukaz-prezidenta-kyrgyzskoj-respubliki-o-nacionalnoj-strategii-razvitiya-kyrgyzskoj-respubliki-na-2018-2040-gody/.

citizens' confidence in the authorities and strengthens democracy.

Civil society groups play a crucial role in the relationship between the state, the law, and society. Civil society groups have become significant players in social justice and human rights initiatives in Kyrgyzstan.[31] For example, the human rights organisation Kylym Shamy, which identifies human rights violations committed by state structures, supports compliance with the rule of law, provides legal assistance to residents of the country and increases the level of legal awareness. Through its activities, it contributes to the strengthening of civil society and the development of a democratic legal order.

Through such activities, public organisations have the opportunity to influence political and legal changes, as they actively work to improve legislation, developing initiatives related to the fight against corruption, protecting the rights of minorities, or preserving the environment. They act not only as lawyers for citizens, but also as catalysts for changes in public policy, often initiating legislative reforms aimed at improving the legal system. In particular, in 2017, Kyrgyzstan adopted a new Law No. 63 of the Kyrgyz Republic "On Protection and Defense from Domestic Violence"[32], which was the result of a three-year joint campaign. This campaign brought together the Forum of women MPs, the United Nations (UN) initiative "UNiTE to End Violence against Women", representatives of civil society and the UN gender thematic group, which consists of participants from various UN agencies in the country. The forum of women MPs, which included representatives of Jogorku Kenesh, played a key role in supporting the draft law, contributing to its adoption in parliament. Simultaneously, public organisations and human rights defenders were actively engaged in the development of legislative initiatives, the preparation of analytical materials, and attracting public attention. In particular, women human rights activists and crisis centres such as Sezim provided expert advice and strengthened the content of the draft law. The adoption of this law was an important step in the fight against domestic violence in Kyrgyzstan.

31 J. JUMAGAZIEVA, *Overcoming obstacles: Examining the challenges faced by women human rights defenders in Kyrgyzstan*. Vienna: Central European University Private University, 2023.

32 Law No. 63 of the Kyrgyz Republic "On Protection and Defense from Domestic Violence", 2017. https://cbd.minjust.gov.kg/111570/edition/14086/ru.

Conducting educational events to improve the level of legal knowledge of the public is one of the key aspects of the work of public organisations. Such measures help people to learn about their rights, protection options, and how to get help if their rights are violated.[33] Educational legal initiatives in Kyrgyzstan are implemented in various formats and attract numerous groups of the population. Non-governmental organisations systematically conduct seminars and trainings, such as "women's rights in the family and society", held in remote parts of the country. Training programmes on the topic "Labour rights of employees" for workers in textile and other industries are also in high demand, where participants receive information about their rights to decent wages, safe working conditions, and social guarantees.[34]

Transparency, as an essential element of interaction between citizens and the state apparatus, is the main principle that guarantees the openness of government activities and the ability of citizens to receive truthful information, minimises corruption risks, increases government accountability, and encourages civic engagement.[35] In the field of ensuring transparency of state activities, the Open Budget platform is actively used, which allows citizens to track how budget funds are distributed. This creates opportunities for public control over government spending and promotes accountability of officials.

Transparency mechanisms include open data and access to public documents, financial reports, decisions made by the authorities; e-government and the development of online platforms where citizens can monitor the work of authorities, submit appeals and participate in discussions; civil monitoring.[36]

One of the mechanisms for ensuring transparency is the introduction of e-government, which is provided for by the Law No. 127 of the Kyrgyz Republic

33 I.M.D. HADINATA, Enhancement of public awareness of legal language through community legal education program. *Community Service Journal of Law*, 2(2), 2023, 72-75.

34 Z.T. KONURBAYEVA, E.S. MADIYAROVA, and M.U. RAKHIMBERDINOVA, Algorithm for generating competitive potential of engineering within the regional economy. *Actual Problems of Economics*, 168(6), 2015, 236–247.

35 A. ANDRONICEANU, Transparency in public administration as a challenge for a good democratic governance. *Revista Administratie si Management Public*, 36, 2021, 149-164.

36 H. FELIZZOLA, C. GOMEZ, N. ARRIETA, V. JEREZ, Y. ERAZO, and G. CAMACHO, Enhancing transparency in public procurement: A data-driven analytics approach. *Information Systems*, 125, 2024, 102430. https://doi.org/10.1016/j.is.2024.102430.

"On Electronic Governance".[37] Based on the introduction of e-government, in particular, public service portals, digital registers, and online appeals, citizens have real opportunities to interact more quickly with state institutions. This helps to reduce the level of bureaucracy, and limits corruption risks, since there is no need for personal contacts when receiving services.[38] Simultaneously, digital technologies simplify obtaining legal information, increasing people's awareness of the legislation.

Digitalisation paves the way for the application of e-justice, the automation of judicial procedures, and the creation of publicly available databases of legal acts, which is crucial for strengthening the rule of law.[39] In addition, digital tools are actively used in human rights activities: online petitions, social media campaigns, and digital monitoring of human rights violations have become an integral part of modern public activism. One important example is the electronic system Sanaripsot (Digital Court), which allows filing lawsuits online, viewing case materials, and participating in meetings remotely via video conference. This approach increases the accessibility of justice, especially for residents of remote regions, and promotes greater openness of the judicial system.

For civil society, digital platforms create conditions for wider participation in public and political life. Social networks, e-democracy platforms, and online forums are becoming platforms for public discussion of government decisions, expressing opinions, mobilising communities, and monitoring government activities.[40] For civil society, digital technologies have become an effective means of influence and self-organisation. For example, social networks such as Facebook and Telegram are used by activists and human rights defenders to collect signatures for petitions, monitor human rights violations, organise protests, or

37 Law No. 127 of the Kyrgyz Republic "On Electronic Governance", 2017. https://cbd.minjust.gov.kg/111634/edition/1119212/ru.

38 H. HRINCHENKO, R. TRISHCH, V. MYKOLAIKO, and O. KOVTUN, Qualimetric approaches to assessing sustainable development indicators. *E3S Web of Conferences*, 408, 2023, 01013. https://doi.org/10.1051/e3sconf/202340801013.

39 J. AFZAL, *Implementation of Digital Law as a Legal Tool in the Current Digital Era.* Singapore: Springer, 2024. https://doi.org/10.1007/978-981-97-7106-6.

40 R., LINDNER, and G. AICHHOLZER, E-democracy: Conceptual foundations and recent trends. In: L. Hennen, I. van Keulen, I. Korthagen, G. Aichholzer, R. Linder, R.Ø. Nielsen (Eds.), *European E-Democracy in Practice*. Cham: Springer, 2020, 11-45, http://doi.org/10.1007/978-3-030-27184-8_2.

inform the public about important social events. Campaigns against illegal construction, corrupt appointments, or poor-quality services in government agencies often start in a digital environment.[41,42] The principle of transparency is consolidated at the constitutional level, in particular in Article 4 of the Constitution of the Kyrgyz Republic.[43] This principle is also consolidated in the Budget Code of the Kyrgyz Republic (Chapter 24)[44], Law No. 123 of the Kyrgyz Republic "On Local State Administration and Local Self-Government Bodies" (Articles 3, 18, 25)[45], Law No. 217 of the Kyrgyz Republic "On the Right to Access Information" (Articles 1, 4, 24, etc.)[46].

As a separate principle of interaction between the state apparatus and citizens, it is worth highlighting the principle of responsibility, which provides that the state apparatus should be accountable to citizens for its actions and for the conscientious performance of its duties to the population. Among the possible options for implementing this principle are the normative consolidation of responsibility of state bodies and officials for failure to comply with laws, abuse of authority; the implementation of public control and reporting; the possibility of filing complaints, appeals, proposals, and the response of the authorities to citizens' appeals.

In public relations, responsibility implies that public authorities and their representatives are responsible to the people for their actions and choices.[47] Re-

41 D. MUKAYEV, U. SHALBOLOVA, and J. TANAŚ, Housing affordability analysis in Kazakhstan based on D-HAQ model. *Journal of International Studies*, 15(4), 2022, 28–42. https://doi.org/10.14254/2071-8330.2022/15-4/2.

42 Z.B. UMBETBAYEVA, S.ZH. SULEIMENOVA, G.G. NURAKHMETOVA, S.A. SAIMOVA, and D. BAITUKAYEVA, The Vienna Convention for the protection of the ozone layer and its role in promoting environmental sustainability and implementation in the national legislations of participating states. *Rivista di Studi sulla Sostenibilita*, 13(1), 2023, 313–330. https://doi.org/10.3280/RISS2023-001-S1020.

43 Constitution of the Kyrgyz Republic, 2021. https://cbd.minjust.gov.kg/1-2/edition/1202952/ru.

44 Budget Code of the Kyrgyz Republic. 2016. https://cbd.minjust.gov.kg/111338/edition/7319/ru.

45 Law No. 123 of the Kyrgyz Republic "On Local State Administration and Local Self-Government Bodies", 2021. https://cbd.minjust.gov.kg/112302/edition/1832/ru.

46 Law No. 217 of the Kyrgyz Republic "On the Right to Access Information", 2023. https://cbd.minjust.gov.kg/4-5355/edition/11754/ru.

47 M. LEE, Government public relations: What is it good for? In: M. LEE, G. NEELEY, K. STEWART (Eds.), *The Practice of Government Public Relations*. New York: Routledge, 2021. https://doi.org/10.4324/9781003177654-2

sponsibility includes both a legal and moral component. In case of violation of laws or improper performance of their duties, state bodies should be held accountable, and citizens should have mechanisms to protect their rights, in particular, through judicial protection or other legal means. The principle of responsibility strengthens the legal order and ensures that the authorities do not abuse their powers. The issue of responsibility of civil servants in the Kyrgyz Republic is regulated by the Constitution of the Kyrgyz Republic[48], in particular, in Articles 5, 35, 109.

Public control of citizens as a type of activity is not prohibited by the current legislation of the Kyrgyz Republic, this type of activity develops as a private initiative of the public, which is in no way stimulated or supported by the state, which affects the effectiveness of such activities.[49] The rule of law is strengthened, the interests of citizens are protected, and fairer and more effective governance is the result of greater state accountability to society.

As a powerful catalyst for change, digitalisation is becoming increasingly important in Kyrgyzstan's interaction between the state, the law, and society.[50] As the world becomes digital, technology is becoming more than just a tool for improving public administration; it also plays a role in increasing government's openness, transparency, and accountability to people.

Digital inequality between different demographic groups, cybersecurity challenges, personal data protection, and information technology abuse are some of the new challenges posed by digitalisation.[51] Without a proper legal fra-

---

48 Constitution of the Kyrgyz Republic, 2021. https://cbd.minjust.gov.kg/1-2/edition/1202952/ru.

49 A. GENERALOV, and O. GENERALOVA-KUTUZOVA, Economics, legal, political and social environment of entrepreneurs in Kyrgyzstan. In: M. Ince-Yenilmez, B. Darici (Eds.), *Engines of Economic Prosperity: Creating Innovation and Economic Opportunities through Entrepreneurship*. Cham: Palgrave Macmillan, 2021, 337-357. https://doi.org/10.1007/978-3-030-76088-5_18.

50 C.R. KULUEVA, B.T. TEMIROVA, B.T. MARZABAYEVA, S.S. IBRAIMOVA, and U.O. AMATOVA, The role of digitalization of education in the sustainable development of the regions of Kyrgyzstan. In: E.G. POPKOVA (Eds.), *Smart Green Innovations in Industry 4.0 for Climate Change Risk Management*. Cham: Springer, 2023, 359-367. https://doi.org/10.1007/978-3-031-28457-1_37.

51 G. AZIEVA, S. KERIMKHULLE, U. TURUSBEKOVA, A. ALIMAGAMBETOVA, and S. NIYAZBEKOVA, Analysis of access to the electricity transmission network using information technologies in some countries. *E3S Web of Conferences*, 258, 2021, 11003. https://doi.org/10.1051/e3sconf/202125811003.

mework and institutional capacity, digital solutions may remain formal and fail to deliver the expected effect.

Based on the analysis, it is worth highlighting the following problems of interaction between citizens and the state apparatus in the Kyrgyz Republic:

- lack of clear mechanisms for implementing norms on interaction between the state apparatus and civil society is an important problem that can hinder the effective interaction of government bodies and public initiatives, hinder the development of democracy and reduce public confidence in the authorities;
- lack of mandatory mechanisms for considering the opinion of citizens when making decisions. For example, although public discussions of draft laws are provided for, they may be optional or have inefficient implementation mechanisms, which reduces the possibility of citizens interfering in the process;
- incompleteness or underdevelopment of mechanisms for monitoring the actions of government bodies. Legislation should include mechanisms of public control and the ability for citizens to intervene when the authorities abuse their rights in order to guarantee the responsibility of the authorities. Even if the right to control is technically recognised, it may not be exercised in the absence of such funds.

Thus, the interaction of the state apparatus and civil society in the Kyrgyz Republic is an essential element of the country's democratic development (Table 2). This contributes to openness, transparency, and accountability of the authorities, and strengthening citizens' confidence in state bodies.

Table 2. Interaction of the state, law, and society in Kyrgyzstan

Element	Role in the system	Interactions with other elements
State	Organises and ensures public power, performs the functions of management, protection, and control	- Issues legal acts (laws, decrees) through legislative bodies - Implements the right through the authorities
Law	System of generally binding norms governing relations in society	- Established and guaranteed by the state - Ensures law and order - Affects the behaviour of citizens
Society	Source of legitimacy of power,	- Influences the development of laws

	subject of political and legal life	through elections, civil society, and the media - Complies with or violates the right

[Source: compiled by the authors based on [52,53,54,55,56,57,58,59,60]]

Various forms of citizen participation are implemented in the country, but in practice, there are often situations where citizens' opinions are not considered or processes remain formal. The main forms of participation include public hearings, public consultations in the adoption of normative acts, participation in electoral processes and the activities of public councils under state bodies, which is guaranteed by the Constitution of the Kyrgyz Republic.[61] The Law No. 241 of the Kyrgyz Republic[62] provides for mandatory public discussions of draft laws concerning the rights and freedoms of citizens.

The key point is the need to create mechanisms for monitoring the actions of state bodies that will contribute to effective management and protection of citizens' rights. Legal instruments of interaction between the state and civil society

52 Law No. 241 of the Kyrgyz Republic "On Regulatory Legal Acts of the Kyrgyz Republic", 2009. https://cbd.minjust.gov.kg/202591/edition/1086595/ru.

53 J. KOSTRUBIEC, The role of public order regulations as acts of local law in the performance of tasks in the field of public security by local self-government in Poland. *Lex localis – Journal of Local Self-Government*, 19(1), 2021, 111-129.

54 A. ANDRONICEANU, Transparency in public administration as a challenge for a good democratic governance. *Revista Administratie si Management Public*, 36, 2021, 149-164.

55 Constitution of the Kyrgyz Republic, 2021. https://cbd.minjust.gov.kg/1-2/edition/1202952/ru.

56 D. BEDNARSKA-OLEJNICZAK, J. OLEJNICZAK, and V. KLÍMOVÁ, Grants for local community initiatives as a way to increase public participation of inhabitants of rural areas. *Agriculture*, 11(11), 2021, 1060. https://doi.org/10.3390/agriculture11111060.

57 A. MAMBETALIEV, *Language policies, attitudes, and beliefs in Kyrgyzstan*. Veszprem: University of Pannonia, 2022.

58 S. CARDENAS, and R.K. ROOT, *Human Rights in Latin America: A Politics of Transformation*. Philadelphia: University of Pennsylvania Press, 2022. https://doi.org/10.2307/j.ctv2g7v1sq

59 J. JUMAGAZIEVA, *Overcoming obstacles: Examining the challenges faced by women human rights defenders in Kyrgyzstan*. Vienna: Central European University Private University, 2023.

60 I.M.D. HADINATA, Enhancement of public awareness of legal language through community legal education program. *Community Service Journal of Law*, 2(2), 2023, 72-75.

61 Constitution of the Kyrgyz Republic, 2021. https://cbd.minjust.gov.kg/1-2/edition/1202952/ru.

62 Law No. 241 of the Kyrgyz Republic "On Regulatory Legal Acts of the Kyrgyz Republic", 2009. https://cbd.minjust.gov.kg/202591/edition/1086595/ru.

require further improvement, in particular, by improving public discussion procedures, developing civil control mechanisms and creating effective ways to consider the opinion of society.

The interaction between the state, law, and society in Kyrgyzstan is a change that requires constant updating of management mechanisms and increasing the level of legal awareness. To develop an effective model of coexistence, it is necessary to adhere to constructive dialogue and mutual responsibility of all participants in public relations, which will create the basis for a stable democratic system aimed at trust and sustainable development.

4. Discussion

Effective mechanisms are needed to balance the interests of all parties involved in constant socio-political transformations and changes in Kyrgyzstan that affect the interaction of the state, law, and society. The rule of law serves as the basis for this interaction, where society is actively involved in decision-making. Effective mechanisms are needed to balance the interests of all stakeholders in Kyrgyzstan, where the state, law, and society interact within the framework of continuous socio-political transformations and changes. The rule of law serves as the basis for this interaction, where society is actively involved in decision-making, and the law has the highest authority. In reality, however, Kyrgyzstan faces several obstacles, such as a lack of trust in state institutions, uneven enforcement, and poor civil society development in some areas.

According to the analysis, social relations, including the interaction under study, should be based on certain foundations that reflect the key principles of legal, democratic and social statehood. The studied laws and regulations of the Kyrgyz Republic consolidate the principles of the rule of law, openness, legal equality, access to information, and citizens' appeals. Beqiraj and Moxham[63] emphasised that in developed countries, principles are not only consolidated in laws, but also operate through practical mechanisms, including independent courts, effective control, and transparent administrative procedures. This

63 J. BEQIRAJ, and L. MOXHAM, Reconciling the theory and the practice of the rule of law in the European Union: Measuring the rule of law. *Hague Journal on the Rule of Law*, 14(2), 2022, 139-164. https://doi.org/10.1007/s40803-022-00171-z.

approach is typical for continental European countries, where principles such as legal equality of all citizens, the prohibition of discrimination, and ensuring open access to information and active participation of citizens in decision-making play a key role.[64,65] Comparative analysis shows that although Kyrgyzstan legally recognises the same principles as developed democracies, the success of their implementation depends on the level of development of institutions, political culture, transparency, and de facto control of the state by citizens.

In Kyrgyzstan, there are signs of openness and democratisation, which, although contradictory, indicate progress towards harmonisation of legal norms with society. There are also certain initiatives to reform the legal system to increase its transparency and responsibility to the population. In particular, the creation of public councils under ministries and the active involvement of the public in the law-making process demonstrate that the state recognises the importance of citizens' participation in governance and understands the need to strengthen the legitimacy of its institutions.[66]

Andrias and Sachs[67] suggest that law is an instrument of dominance of certain social groups. Legal norms often reflect the interests of only certain strata, and not the entire community, so the relationship between the state and citizens can be unequal. However, this thesis is not confirmed by the example of Kyrgyzstan. The introduction of digital services is a step towards improving the transparency and accessibility of public services for all population groups, not just the elite. Such tools reduce the likelihood of abuse and provide an opportunity for more equal interaction between citizens and the state. In addition, the activities of some public organisations and initiatives in the field of

64 O. PAVLOVSKYI, M. BLIKHAR, L. AKIMOVA, V. KOTSUR, O. AKIMOV, and M. KARPA, International migration in the context of financial and economic security: The role of public administration in the development of national economy, education, and human capital. *Edelweiss Applied Science and Technology*, 8(6), 2024, 1492–1503. https://doi.org/10.55214/25768484.v8i6.2265.

65 B.R. REXHEPI, Impact of remittances on Kosovo's economic development and poverty reduction. *Quality – Access to Success*, 24(195), 2023, 347–359. https://doi.org/10.47750/QAS/24.195.41.

66 A. SYZDYKOV, A. ABDIROVA, M. ARALBAYEVA, A. TAPENOVA, and T. MAKHANOV, Fraction as a legal form of activity of the parliament of the Republic of Kazakhstan (taking into account the world experience). *Indian Journal of Science and Technology*, 9(16), 2016, 89832. https://doi.org/10.17485/ijst/2016/v9i16/89832.

67 K. ANDRIAS, and B.I. SACHS, Constructing countervailing power: Law and organizing in an era of political inequality. *Yale Law Journal*, 130(3), 2021, 546-577.

legal literacy indicate that the law can become an effective means of attracting citizens to protect their interests.[68,69]

According to the results of the current study, the activity of public organisations in Kyrgyzstan allows them to maintain their influence on political and legal transformations. They not only respond to human rights violations, but also initiate systemic reforms aimed at improving legislation. Non-governmental organisations act not only as defenders of the interests of individual social groups, but also as catalysts for change, forming alternative views on the national policy and contributing to the creation of conditions for a more open and democratic process.[70] An example of such influential activity is the initiation of the adoption of Law No. 63 of the Kyrgyz Republic.[71] In the scientific literature, in particular, in research by Miller[72], it is noted that public organisations are considered as important entities that can influence political and legal changes. Their activities are considered key in forming the link between the state, law, and society. As noted by Miller, public organisations play the role of intermediaries that form public opinion, encourage citizens to participate in state governance, and create a legitimate basis for law-making.

As a result of the current study, it was found that cooperation between state bodies and citizens is a successful example for Kyrgyzstan. This cooperation involves the active participation of the population in management and decision-making processes. The country's constitution provides citizens with the opportunity to participate in public administration. One of the forms of such cooperation is public hearings and consultations, which allow the population to express

68 V.V. VOLKOV, Ethnic minorities in the political discourse of Latvia. *Etnograficeskoe Obozrenie*, 2017(2), 2017, 24–38.

69 V. VOLKOV, Features of the linguistic identity of the Russian population in Latvia. *Forum for Linguistic Studies*, 7(2), 2025, 882–902. https://doi.org/10.30564/fls.v7i2.8320.

70 A. EFREMOV, Age-specific mental health profiles of combat veterans: Post-traumatic stress disorder and related disorders. *Journal of Rational – Emotive and Cognitive – Behavior Therapy*, 44(1), 2026, 4. https://doi.org/10.1007/s10942-025-00637-7.

71 Law No. 63 of the Kyrgyz Republic "On Protection and Defense from Domestic Violence", 2017. https://cbd.minjust.gov.kg/111570/edition/14086/ru.

72 E.J. MILLER, Lawmaking and public administration. In: A. Farazmand (Eds.), *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Cham: Springer, 2023, 7311-7315. https://doi.org/10.1007/978-3-030-66252-3_1122.

their opinion on political, economic, or social initiatives.[73] Such interaction contributes to a more transparent and open management process, creating conditions for dialogue between the authorities and society. From a legal standpoint, as noted by Pech[74], partnership between citizens and the state is seen as a mechanism for implementing the rule of law. Participation of citizens in decision-making processes contributes to the legitimisation of state power, ensuring its transparency and accountability, and the development of a legal culture in society. Post and Rosenblum[75] emphasised that this form of interaction is a sign of a developed civil society, which can not only control the actions of the state, but also to actively participate in solving problems both at the local and national levels.

Another pressing issue that affects the interaction of the state, law, and society is digitalisation. The experience of Kyrgyzstan considered in the current study shows that digitalisation poses a serious challenge to interaction between the state, law, and society. Digital technologies open up the potential to improve the availability of public services and improve administrative efficiency.[76,77] The challenges of cybersecurity, digital inequality, protecting citizens' rights, and the need to improve laws to regulate these processes create new legal and social challenges. Thus, digitalisation is a two-way process that requires constant adaptation of legal and social structures to new realities. Koos[78] emphasised that new technologies are changing social and economic structures, which calls into

---

73 Z. AKSHATAEVA, K. BAIZHANOVA, S. BEISEBAEVA, G. SHERIMKULOVA, G. NURAHMETOVA, and Z. KHAMZINA, The framework of social security system public management in Kazakhstan. *International Journal of Environmental and Science Education*, 11(18), 2016, 11645–11657.

74 L. PECH, The rule of law as a well-established and well-defined principle of EU law. *Hague Journal on the Rule of Law*, 14(2), 2022, 107-138. https://doi.org/10.1007/s40803-022-00176-8.

75 R.C. POST, and N.L. ROSENBLUM, *Civil Society and Government*. Princeton: Princeton University Press, 2002.

76 A. BARLYBAYEV and A. TURGINBAYEVA, Development and implementation of an advanced fuzzy expert system for the assessment of information security risks. *Journal of Computational and Cognitive Engineering*, 4(4), 2025, 570–580. https://doi.org/10.47852/bonviewJCCE52024683.
5

77 B. ABDYGALYM, M. SAMBETBAYEVA, A. YERIMBETOVA, A. NEKESSOVA, N. TASBOLATULY, N. SMAILOV, and A. NAZYMKHAN, NLP models for military terminology analysis and detection of information operations on social media. *Computers,* 14(11), 2025, 485. https://doi.org/10.3390/computers14110485.

78 S. KOOS, Digital globalization and law. *Law Science Law Review*, 6(1), 2022, 33-68.

question traditional legal mechanisms.

The interaction between the state, law, and society in Kyrgyzstan is dynamic and contradictory, due to a number of historical, social, and political factors. The state plays a key role in shaping the legal system and managing social processes, but its effectiveness largely depends on the power of institutions, transparency of management decisions, and the ability to ensure compliance with the principles of the rule of law. Laws serve as both a tool for influencing the authorities and protecting individual rights and freedoms, although in practice there is often a gap between the regulatory framework and its application. In addition, this interaction is complicated by a number of challenges, including distrust of public institutions, legal nihilism, unequal access to justice, and insufficient development of feedback mechanisms.

5. Conclusions

The successful interaction of the three key elements of the social structure creates the basis for stable development of the country, ensuring the rule of law and respect for democratic values. The analysis shows that Kyrgyzstan is gradually abandoning authoritarian methods of government, moving to more open and democratic forms. However, this process is accompanied by difficulties that require a detailed rethinking of the role of each element of the public administration system. The state in Kyrgyzstan plays an important role in stabilising social processes, but its actions often cause distrust among the population due to the historical context, corruption, and inequality in the distribution of political power. However, in this system, the law acts as a mechanism for controlling social relations, and as a defender of human rights and freedoms, which is especially important in the context of post-Soviet development.

Law in Kyrgyzstan serves not only as a mechanism of state regulation, but also as a means of social partnership, through which citizens have the opportunity to exercise their rights, influence the national policy, and participate in the decision-making process. This is evident in the work of institutions such as public councils attached to state bodies, local government mechanisms, public hearings, and digital feedback platforms. Despite the formally established ways of participation, in practice it is possible to observe fragmentation and unevenness in the implementation of the principle of cooperation. In particular, there are serious problems associated with weak institutional capacity and a low level of legal awareness. Kyrgyzstan has specialised institutions and procedures aimed at engaging the public in management processes, such as public councils, public hearings, e-democracy, and local self-government bodies. However, these mechanisms have limited impact due to the lack of a detailed regulatory framework, low political culture, and limited resources of civil society.

There is a growing number of human rights and public organisations that not only help people in difficult legal situations, but also actively influence national policy, create human rights initiatives, and act as verifiers of the actions of the authorities. This shows that society is beginning to take an increasingly active position in the legal process and demand greater transparency and responsibility from state structures. Effective cooperation between the state, law, and society is possible only if the institutional capacity of public authorities for transparent governance is increased, the principles of openness, accountability, ensuring the rule of law and active participation of citizens in decision-making processes are introduced.

It should be emphasised that this interaction is not a one-off event; it requires a systematic approach based on the principles of mutual responsibility, transparency, accountability, and trust. A partnership model based on dialogue and cooperation should not be an exception, but a standard for Kyrgyzstan's democratic development. Further research should focus on a more detailed study of the effectiveness of specific mechanisms of citizen participation in public administration, such as public councils, public consultations, and e-government tools. Special attention should be paid to the investigation of the real impact of these tools on the development of public policy, and to the study of factors that limit their effectiveness.

Mykhailo Shkilniak
Full Doctor, Head of the Department of Management, Public Administration and Personnel, West Ukrainian National University, Ternopil, Ukraine
m_shkilniak@ukr.net

Grygorii Monastyrskyi
Full Doctor, Professor at the Department of Management, Public Administration and Personnel, West Ukrainian National University, Ternopil, Ukraine
monastyrskyi.g@meta.ua

Alla Melnyk
Full Doctor, Professor at the Department of Management, Public Administration and Personnel, West Ukrainian National University, Ternopil, Ukraine
alla-melnyk@hotmail.com

Alla Vasina
Full Doctor, Professor at the Department of Management, Public Administration and Personnel, West Ukrainian National University, Ternopil, Ukraine
vasina_alla@outlook.com

Olena Dudkina
PhD, Associate Professor at the Department of Management, Public Administration and Personnel, West Ukrainian National University, Ternopil, Ukraine
odudkina@hotmail.com

Modernisation of the public management system in Ukraine

Abstract

The existence of Ukraine as an independent subject in the international arena provides for a modern legal and democratic system of public management, which serves as the basis for the evolutionary transformation of socio-political relations in the period of post-war development of the state. The purpose of the study is to determine the areas of improvement and renewal of the public management system in Ukraine by considering the main stages of its historical development and functioning of the components of the public management system at the present stage. The main approaches used were the historical method, which analysed the transformation of the public management system at different stages of Ukraine's development, and the method of system analysis, which was used to investigate the key components of the Ukrainian public management system.

The main aspects, features, and elements of the public management system in Ukraine are considered. It is determined that the content characteristics of public management practically did not change, but its functional component underwent transformations. The paper focuses on successful attempts to develop self-government that took place during the first state formations on the territory of modern Ukraine. In the Soviet period, the practice of self-organisation and public control was nominal; the role and significance of communities was then minimal and did not have a decisive influence on public management decision-making. With independence, the processes of democratisation of public administration began, the development of such a component as local self-government, territorial communities received more rights, but a number of complex issues related to their functioning remain. In the 21st century, legislative changes took place: the rights of public institutions expanded, the processes of decentralisation and digitalisation of public management intensified, but corruption and the influence of oligarchic groups increased. The situation in which the modern system of public management in Ukraine is characterised by a number of innovations and reforms is outlined, but a qualitative update is needed in the area of preventing corruption and expanding the powers of local authorities, in accordance with the principles of decentralisation. The results and conclusions of this study can be used as a theoretical basis for further scientific research and for improving the public management system.

Keywords: public management, public policy, public service, local self-government, democratisation, digitalisation, decentralisation.

1. Introduction

Since its inception, the Ukrainian state has been characterised by various intense processes in the context of confrontations and the search for consensus and agreement between representatives of public opinion and the authorities. The level of efficiency of functioning of public authorities directly depends on the ability of the state leadership to meet the basic needs and requests of the population. The development of the Ukrainian state at various stages was accompanied by complex transformations of the public administration system; various political, economic, social and other processes directly or indirectly affected the public management system, and in particular, the functioning of such a component as public management. Negative phenomena associated with the uncontrolled enrichment of individual government representatives, the influence of oligarchic clans, significant corruption, deepening the crisis of trust between the authorities and the public, form barriers to a qualitative transition to the European scenario for the development of public management. The study of public management in the context of determining the prerequisites for ensuring its effective functioning is an urgent and timely task; today, in the context of globalisation transformations, the transition to qualitatively new systems and methods of activity in the field of public management and local self-government, it is extremely important to develop an efficient public service. In this context, it is important to have a clear understanding of the development features of all components of public management, methodological foundations and practical aspects of the functioning of its subjects.

The issues of developing and implementing effective mechanisms for public management of public life processes in Ukraine have always been relevant. The development of effective methods and the search for acceptable solutions to urgent problems and tasks in various spheres of public life based on coordinating the interests of elements of the public system and attracting the potential of all components of public management causes increased attention of both public institutions and government structures. These issues became particularly relevant after Russia's full-scale invasion of the territory of Ukraine in the context of rational use of all opportunities of territorial communities with the involvement of the potential of local self-government bodies, strengthening the coordinating and integrating role of state authorities. Therefore, it is extremely important to carefully analyse the activities of all public management entities, determine their functions, rights, obligations, and opportunities to achieve the outlined goals of public development.

According to N. Goncharuk and A. Cherednychenko, the transformation and recovery of the Ukrainian economy in the period of post-war development requires a clear state strategy, where the achievement of positive results depends entirely on the successful work of all subjects of public management [1]. However, due to the existence of significant contradictions in the context of globalisation, human, social, political, and economic development of Ukraine, it is difficult to define clear approaches and effective mechanisms for the modernisation of the system of public management and local self-government on the European model.

Following O. Zubchik et al., the combination of centralised and local governance in the context of the national policy implementation is a powerful tool for improving the overall effectiveness of public policy in the country, especially in conditions of martial law and general uncertainty [2]. However, in the absence of a regulatory framework that would clearly consolidate the powers of government structures at various managerial levels, organisation of the effective functioning of the public management system is an extremely difficult task.

Digitalisation, as the main condition for the current stage of development of public management of any democratic state in the world, according to R. Primush, is a sign of a strong national security system and the protection of important government data [3]. The issue of modernisation of public management requires comprehensive investigation due to the high risk of interference in the system of external forces, which gives the problem of updating the public management system a special urgency and relevance.

Improvement of the regulatory support of the public management system in Ukraine will contribute to the creation of a new state model based on the principles of new public administration and public management. I. Kormych and A. Kormych argue that this strategy is the most successful for Ukraine, but it is necessary to carefully consider the local specifics and national tradition of conducting political activities in the state [4].

European support and use of European experience in the processes of modernisation of the public management structure in Ukraine, according to S. Khadzhyradieva and J. Shevtsova, will contribute to more effective implementation of the main tasks in the context of modernising the national policy through decentralisation and increasing the powers of local self-government [5]. However, the defining word should remain with the central government – in order to avoid threats to national security and stability.

The purpose of the study is to summarise the areas of the modernisation of public management in Ukraine through the analysis of historical development and consideration of its current state by highlighting specific features of the activities of the main subjects of the public management system.

2. Materials and Methods

The following methods were used in the preparation of this research paper: historical, statistical, comparison, system analysis, and the method of system modelling. The historical method was used to determine the main stages and time periods in the process of establishment and development of the public management system in Ukraine. This method was also used to draw parallels in the context of studying the transformation of public management at key stages of Ukraine's development as an independent entity in the international arena. The statistical method was used for qualitative and quantitative assessment of Ukraine's position as a legal entity in the global dimension through the prism of positioning it in a number of world ratings regarding the level of development of democracy, press freedom.

The comparison was used to contrast the functions, rights and obligations, and specifics of the activities of the main subjects of public management in Ukraine during different historical periods – Kievan Rus, Zaporozhian Sich, and the Soviet Union. The method was also used to compare individual types, factors, and areas of functional use of the results of activities in the field of public management. The method of system analysis was used to determine the basic elements, structural components, and general state of public management in Ukraine; the method contributed to the consideration of characteristic features and specific features of the implementation of public policy implementation tasks in different periods of the development of Ukrainian statehood. The method of system modelling was used to develop ways to improve the public management system in the state and present practical recommendations based on these developments to activate the processes of modernisation and actualisation of public management activities.

In order to examine in more detail the specifics of the functioning of the public management system in the state and to investigate ways to improve and modernise it, the following materials were analysed: Constitution of Ukraine [6], Order of the National Agency of Ukraine on Civil Service of Ukraine No. 158 "On the Approval of the General Rules of Moral Behaviour of Civil Servants and Local Government Officials" [7], Strategy for Reforming the Public Administration of Ukraine on 2022-2025 [8], statements of state authorities [9], official reports of international organisations [10-12], statistics [13-15], analytical reviews [16], and training materials [17]. All of the above materials contributed to a deeper and more substantive investigation of public management issues in Ukraine and became a practical basis for developing recommendations on ways and means of modernising the public management system.

3. Results

Due to consistent and generally harmonious evolutionary development, the vast majority of countries in the world have been able to develop a complete, functional, and efficient system of interconnected development of the state and society. Faced with a number of challenges and obstacles in socio-economic, political, humanitarian, and other areas of public administration, such countries have created unique systems of public management, the main participants of which are in contact with each other on the basis of equal and legal interaction [18]; democratic principles, stable development of legal relations, the rule of law are the basic basis here – the level of development of democratic values, ideas, and principles depends on the overall improvement of a particular country, which is demonstrated by numerous world ratings and global indices (Table 1). The higher the level of democracy, the more developed and modern the system of public management and governance in the state is – this is achieved primarily through decentralisation, increasing the role and influence of local self-government, and through the intensification of digital and information processes in the public sphere [19, 20].

Table 1. Level of democracy in the world according to the Democracy Development Index in 2021-2023

Country	Management system	Index (place in 2023)	Place in 2022	Place in 2021
Norway	Constitutional monarchy	9.8 (1)	1	1
New Zealand	Constitutional monarchy	9.4 (2)	2	2
Finland	Parliamentary republic	9.3 (3)	5	3
Sweden	Constitutional monarchy	9.3 (4)	4	4
Iceland	Parliamentary republic	9.2 (5)	3	5
Denmark	Constitutional monarchy	9.1 (6)	6	7
Ireland	Parliamentary republic	9 (7)	8	6
Taiwan	Parliamentary presidential republic	9 (8)	10	8
Australia	Constitutional monarchy	8.9 (9)	15	10
Canada	Constitutional monarchy	8.9 (10)	12	12
Ukraine	Parliamentary presidential republic	5.6 (86)	87	86
Democratic Republic of the Congo	Presidential republic	1.4 (162)	153	158
Syria	One-party system	1.4 (163)	152	160
North Korea	One-party system	1.1 (164)	165	165
Myanmar	Military junta	1 (165)	162	164
Afghanistan	Unitary totalitarianism	0.3 (166)	166	166

Note: countries are rated on a scale from 0 to 10, where 0 – the lowest level; 10 – the highest. The index includes factors such as the electoral process, political participation, government functioning, political culture, and civil liberties.

Source: compiled by the authors based on [10; 12-14; 19].

Before considering the topic of public management in Ukraine, it is necessary to determine the main terms and concepts. For example, the term "public management" was first introduced into wide circulation in 1972 by the British civil servant D. Keeling, describing it as the process of allocating the most effective mechanism for applying all available resources in order to achieve the priority goals and objectives of the national policy as successfully as possible [21, 22]. It is also necessary to distinguish the concept of public management from public administration. If public administration refers to a system of measures, factors, mechanisms, and methods of interaction between political parties, public organisations, and other subjects to achieve their goals, then public management is interpreted as the activity of the state itself, state bodies for the purpose of administering and monitoring socio-political changes in the country [23, 24]. It can be summarised that public administration includes many components, such as public service, public management (according to some experts, these concepts have slightly different meanings, but are often used as synonyms) [25-27].

The development of public management in Ukraine has a long history; the first signs of modern management in the form of primitive proto-state authorities began to appear on the territory of the country at the time when nomadic peoples first appeared in the northern Black Sea region, where they created the state – Scythia [17]. The ruler there was the Tsar, who was appointed on the principle of succession, the legislative body was the people's assembly of the Scythians. Subsequently, in the times of Kievan Rus, the number of subjects of public management increased: in addition to the prince, the council of boyars and the people's veche functioned here – the first public association in the history of the Ukrainian state [28], which became a certain model for the development of local communities and councils in some European countries [29]. During the Cossack period, the development of state-building processes continued; a qualitative sign was the beginning of self-organisation of the Ukrainian people in the form of the Zaporozhian Sich. The military and political nature of the society at that time played an important role in the emergence of the ideological basis of modern Ukrainians. Subsequently, during the stay of the Ukrainian lands under the rule of the Russian Empire, the achievements of local self-government were somewhat lost, and during the period of Soviet power – almost destroyed and forgotten. After 1991 – the time of independence – the traditions of public management are being revived again in Ukraine [30], combining the best world practices (in Western Europe at that time there were revolutionary changes in the field of public management, mainly due to decentralisation and updating of the legislative framework [31]) in the field of public administration for more effective interaction of all participants in public management processes.

In the 21st century, the sphere of public management is gaining significant proportions, because now, in the context of European integration and entry into the single European economic and political space, reforms are actively being carried out in Ukraine, in particular, in the field of digitalisation, decentralisation, and increasing the role and influence of local authorities [5; 28]. An important sign of increasing attention to the improvement of the public management system in Ukraine and obtaining positive results in the public sphere is the dynamics of positioning the state in the relevant ratings, especially in the European Open Data Maturity Index and the World Social Progress Index (Table 2); before the start of the full-scale invasion, Ukraine showed better results every year, indicating an improvement in the situation towards effective implementation of tasks in the field of public management.

Table 2. Ukraine in the world rankings for the period 2021-2022

Rating	Place in 2022	Place in 2021
European Open Data Maturity Index	2	6
World Giving Index	10	20
Military Strength Ranking	15	22
EF English Proficiency	35	40
Social Progress Index	52	48
Global Innovation Index	57	49
Global Competitiveness Index	66	61
Global Food Security Index	71	58
World Happiness Report	98	110
World Press Freedom Index	106	97
Economic Freedom Index	130	127
Global Peace Index	153	142

Source: compiled by the authors based on [16].

In Ukraine, the system of public power includes legislative, executive and judicial power, and the system of local self-government. According to the Constitution of Ukraine, the highest executive authority and the main subject of public management in the state is the Cabinet of Ministers, to which other state bodies and institutions are subordinate (Table 3). In practice, the system of public management is much broader and more extensive, it also consists of representatives of business, scientific sphere, mass media, public organisations [4].

Table 3. General system of executive authorities in Ukraine (in accordance with the Constitution of Ukraine)

Organisation	Subordination, subject 1*	Subordination, subject 2*	Subordination, subject 3*
Cabinet of Ministers of	Prime Minister of Ukraine, Deputy	Ministries	Local state administrations,

Ukraine	Prime Ministers, Ministers		territorial bodies of central executive authorities
		Central executive authorities	Local state administrations
			Territorial bodies of central executive authorities
Council of Ministers of the ARC**	Chairman of the Council of Ministers, Deputy	Ministries	Local state administrations
		Republican committees	Local state administrations

Note: * – hierarchical structure of subordination: subject 1 reports to subject 2, subject 2 reports to subject 3; ** – Autonomous Republic of Crimea.

Source: compiled by the authors based on [6].

Subjects of public management interact with each other at different stages of the national policy implementation and with different intensity; the key signs of such interaction can be called the following: the desire of authorities to coordinate national and local interests; establishing contact with civil society; increasing the role and influence on public management decisions of public organisations, mass media; attracting the potential of the business sector and scientific institutions to the implementation of the country's development tasks.

The main document regulating activities in the field of public management is the Constitution of Ukraine, which introduced the basis for the development and functioning of public authorities. According to the Basic Law, the only source of power in Ukraine is the people, in whose interests the subjects of public management act, and who have the exclusive right to make decisions on key aspects of state activity and social development [2; 6]. The legal framework of public administration consists of legislative and regulatory acts that complement and clarify the provisions outlined in the constitution, but there is no single interpretation of the main concepts in the field of public administration and public policy in Ukraine [1]. The issue of improving the public administration system in Ukraine is acute, the most pressing problems and key aspects, the achievement of which is necessary for its modernisation in the context of modern challenges, are widely discussed. After all, in the 21st century, the problems of a strong bureaucratic process accompanying activities in the field of public management remain unresolved; a low level of social interaction between subjects of development and implementation of public management decisions; uneven (geographically) development of digital services in the public sphere.

Among the key areas of modernisation of public management in the context of ensuring its adequate response to the challenges of public development are the following: establishment of a clearly ordered and formalised interaction of public management entities in the horizontal and vertical plane; development of an effective organisational and functional structure of the public management system, considering modern public requirements and needs, real conditions in which Ukrainian society is located; implementation of innovative management technologies in the functional activities of public administration entities at different levels of the public management system in order to develop effective mechanisms for post-war renewal of the country; increasing the objectification of goal determination, and development of mechanisms of public management using strategic, systematic, synergetic approaches; development of a system of professional and politically neutral public service; increasing the effectiveness of public control; development of the potential of decentralisation. Achieving the outlined guidelines for the development of public management in Ukraine is possible if the institutional basis for attracting the potential of all elements of the social system is established, based on democratic and legal principles and using the best international practices [28].

The renewal of the public management system should be comprehensive and harmonious, based on the consideration of internal and external factors of the environment of life of Ukrainian society, provide for the introduction of effective forms of integration of efforts of state bodies, local self-government, public sector, business structures in towards creating prerequisites for bringing Ukraine to the trajectory of post-war development. It is important to reinforce the integration, balancing, guiding, and coordinating influences of the state, based on the interests of the public, business, and territorial communities. It should be noted that Ukraine began the next phase of modernising the structure of public management at the beginning of the 21st century; however, the status of a candidate for membership in the European Union (EU), which the state received on June 23, 2022, contributed to the fact that Kyiv began to implement much more active reforms of social, economic, political, and other areas, which are mandatory for the harmonious democratisation of the sphere of public management and administration [9]. To date, a number of successful transformations have been carried out in socio-economic and managerial systems at various levels as a result of the implementation of the decentralisation reform, the implementation of large-scale digitalisation, and the introduction of the latest information technologies [3, 4]. All this directly contributed to the development of democracy and ensuring the stable life of Ukrainian society, despite the ongoing Russian-Ukrainian war and despite the negative terrible consequences that it caused.

After the beginning of a full-scale invasion of the territory of the Ukraine, the problem of protecting sovereignty, integrity, and national unity became the main topic of discussion, primarily in the context of fulfilling the tasks of public management. It was determined that a weak system and an undeveloped functional component allow further developing any state and strengthening it in the global space [27]. The basic component of modernising the sphere of public management in Ukraine should be its approximation to European and international standards: comprehensive tolerant treatment, respect for representatives of all religions, nationalities, and other social groups. Such an ideology is the main feature of a democratic society, in which public structures, all subjects of public management interact with each other on equal rights and with a decent attitude [1]. In this context, there are a number of problems in Ukraine: there are still cases of intolerance, outbreaks of aggression against representatives of other religions, nationalities, and different sexual orientations [11].

The next important element of the modernisation of public management, and in particular, such a component as the public service, should be a purposeful fight against corruption. This problem is the main obstacle to Ukraine's rapid accession to the EU, hinders the free development of the European public administration infrastructure with equal participation of public institutions. In this context, it is important to implement reforms, in particular, to strengthen criminal liability for illegal actions and abuse of authority. To effectively combat this challenge, it is necessary to develop and implement effective mechanisms for public control over the activities of public authorities. In war conditions, it is usually difficult to carry out modernisation transformations, but they are necessary to accelerate the victory and restore the Ukrainian state in the post-war period. Thus, the main task of public management (this is acceptable for all countries that are at the stage of recovery after the end of hostilities [32, 33]) during this period should be active assistance in the modernisation of industrial enterprises (mainly military), ensuring the security of energy and social infrastructure facilities, protecting the agricultural sector, and small businesses [2].

The implementation of the above-mentioned areas of modernisation of the public management system requires proper regulatory support. An important document defining the key principles and principles of public administration and public control in Ukraine is the Strategy of reforming the public administration of Ukraine for 2022-2025, according to which the main tasks of improving the public administration system for the coming years should be: ensuring access to high-quality administrative services for both citizens and business entities; developing a professional and virtuous public service focused on the protection of citizens; forming prerequisites for effective development and implementation of the national policy based on the interaction of state bodies with interested parties [8].

Along with this, it is necessary to review and improve the current legislation, in particular, the laws of Ukraine "On Civil Service" (emphasis on the functions, duties and tasks of civil servants to minimise the occurrence of corruption schemes, and to increase the level of trust in them on the part of citizens) and "On Service in Local Self-Government Bodies" (the need for a significant expansion of executive functions of local self-government representatives by increasing the level of their professional training in the legislative, information and service, and social and humanitarian context and, as a result, increasing the level of trust and respect for them among the local population) [4]. If the two previous tasks are successfully implemented, the recommended step will be to develop the so-called Code of Public Service in Ukraine, where, among other principles and rules, the ethical side of interaction between public management entities, in particular, on the part of civil servants and local government officials, would be presented. It is worth noting that today there is a similar document-general rules of ethical behaviour of civil servants and local government officials, approved by the

Order of the National Agency of Ukraine for Civil Service Issues of August 5, 2016 – however, it does not reflect all the problematic aspects of ethical behaviour and tolerant interaction in the field of public management, but defines very generalised principles and provides some general recommendations [7].

Continuing the discussion on the institutionalisation of public management, it is worth highlighting the problem of the lack of a clear division of powers between central and local authorities, and the unequal division of rights and functions of local authorities (this problem is common to almost all European countries – to a greater or lesser extent) [34]. To eliminate these gaps, a number of regulations were adopted in Ukraine (for example, Law of Ukraine No. 280/97-BP "On Local Self-Government in Ukraine" [35], Law of Ukraine No. 2804 "On the Principles of Administrative and Territorial Structure" [36]), but they are rather ambiguous and do not clearly define the basic powers and functions of the main subjects of public management at the local level. To improve the effectiveness of public management of the development of territories and territorial communities, it is necessary to clearly distinguish and legislate the powers of local executive authorities and local self-government bodies.

Another important component of updating the public management system is improving the skills of public servants, especially those whose functional activities involve contacting citizens. Modernisation of the public service should take place by increasing the level of competitive selections for civil service positions and positions in local self-government bodies, achieving impartiality and non-engagement of public servants in the process of performing their official duties, using information and communication technologies in their professional activities in the context of the development of digitalisation of public management, continuous training of public servants (advanced training courses, trainings) [37-39]. This area is quite actively implemented in Ukraine; public servants constantly improve their skills, receive training and practices, participate in experience exchange programmes with colleagues from other countries (mainly from the EU) [9]. However, many opportunities for improving the qualification level of public servants are still not implemented and require the development of methodological and organisational support for further use. It is worth pointing out that the development of the public management system in Ukraine should take place considering the principles of sustainable development at all its territorial levels: central, regional and municipal [40, 41].

Thus, analysing the processes of development of the public management system in Ukraine, a number of problems that hinder modernisation transformations in the public management system can be identified, namely: imperfect regulatory support for the activities of government bodies at all levels, high level of bureaucracy and corruption, insufficient level of powers of local authorities. Despite this, today the most positive result of the modernisation of public administration is digitalisation, the creation of an e-governance system (here Ukraine demonstrates positive dynamics), which contribute to Ukraine's approximation to European and international standards of public policy, create opportunities for involving a wide range of public institutions in the processes of public administration of all spheres of public life, and thus form the basis for the transformation of Ukraine into a democratic and legal state and strengthening its position in a globalised world.

4. Discussion

Investigating the current state and needs of modernising the public management system in Ukraine through the prism of the state's European integration aspirations in the context of the ongoing Russian-Ukrainian war, and to achieve the goals of post-war restoration of the state, the following was determined: the issue of modernising public management is extremely important and is in the constant focus of both the public and representatives of government structures at all levels. Considering scientific developments on the functioning of the public management system, it is concluded that modernisation transformations in the public administration system are a key condition for urgent transformations in the country. Ukrainian specialists carefully investigate this topic; the number of analytical materials and scientific reviews indicates a rapid increase in attention to this problem, which should be urgently resolved in the near future. Experts from European countries (Slovenia, Poland, Germany) pay considerable attention to the investigation of stages and periods of development of national public administration systems, focusing on the role and place of such processes as decentralisation, informatisation of activities, and the influence of European Union institutions. In general, the results and conclusions of researchers indicate the importance of the process of modernisation of elements of public management – both for the qualitative development of individual states, and for improving the level of well-being of civil society as a whole.

In this paper, the idea was presented that state administration, which is the basic component of public management, is the result of the activities of all state authorities to meet the key needs of both civil society and the state itself. A similar idea was also voiced by I. Thapa, who stated the global importance of public management for the planned and successful development of a particular state in the context of rapid globalisation processes and transformation of socio-political relations [21]. However, regarding the modernisation of the public management system, in the context of improving certain of its components, the researcher was convinced that the best option is the relative stationarity and constancy of the existing state; it is important to clearly plan and build the structure immediately, without the need to radically change it in the future, because this will bring its own problems and difficulties.

The analysis of the processes of development of the public management system in this paper is defined as an important element necessary for the development of effective mechanisms for further modernisation of the public sphere. F.A. Qawasmeh has also previously voiced similar assumptions, explaining the need for a detailed analysis of the temporal transformation of systems and structures in the field of public management and local self-government of both modern states and former proto-state entities, the need for the development of a new, modern and, most importantly, effective system of public management based on world and national experience [23]. However, this statement is true for historically democratic and socially-oriented states; according to the researcher, totalitarian and authoritarian regimes are not subject to this type of analysis in the context of modernising existing public-managerial relations.

The development of independent and more effective local self-government is a key element in the modernisation of the public management system in the context of giving local authorities a wider range of powers with the right to resolve issues not only of a purely internal nature, but also in relation to interregional and even interstate requests [42-44]. This position, highlighted in the presented paper, to some extent repeats the conclusions of S. Kuhlmann et al., who stated that activities in the field of public administration should be based entirely on the principles of decentralisation and improving the efficiency of local authorities; the effectiveness of public policy at the state level depends on the effective performance of managerial functions at the regional level [31]. Experts argued that there are some cases when local government is not the best option for the national policy: in the case of regressive development of individual territories or their rapid economic decline, local government management can be threatening and dangerous, and the best option is the control of central authorities.

The advantages of decentralisation, which was based on a targeted and carefully planned definition of the rights and powers of local self-government bodies, were put forward in this work as the main components and driving root causes for the transformational renewal of the public management system. Increasing the effectiveness of local self-government based on the implementation of the principles of its autonomy will contribute to much more efficient local governance, in particular, in solving strategic tasks of economic and social development of individual territories, their protection, defence and, as a result, this would allow territorial communities to join in solving national problems that arise [45-48]; this is especially true in the context of deepening crisis phenomena in all spheres of public life caused by military operations. This idea was presented in the paper and is consistent with the priority areas of research by F. Away et al., who argued the need for maximum independence for local authorities in the context of solving various issues of a socio-political and economic nature, especially with the help of the latest digital tools and considering the current regulatory framework [32].

In the presented study, special emphasis was placed on the need for digital modernisation of the public management sphere, on the importance of introducing innovative methods and methods of implementing management activities – using new databases, registers, tools. Digitalisation and general informatisation, according to Ž. Kotnik et al., is the element without the active use of which it is impossible to build a modern democratic legal and independent state in the context of globalisation changes and competitiveness at the international level [27]. However, experts agreed that the uncontrolled speed of digitalisation of the public sphere, the participation of insufficiently qualified employees in the process, and the overload of the system with excessive bureaucracy can lead to threats to the national security of the state and cause the leakage of secret data about its citizens. Modernisation of the public management system in this case, according to researchers, seems premature and even irrelevant task, because in order to increase the effectiveness of interaction between civil society and the state, it is necessary, first of all, to ensure stable protection of basic necessities – personal data, banking operations, and other important information [49-51].

In the process of studying the development of the public management system in Ukraine in the context of finding ways and mechanisms for its modernisation and renewal in accordance with the requirements of the time and the requests of civil society, some conclusions were drawn. Thus, analysing papers by specialists in the public sphere – political scientists, economists, sociologists, civil servants, and analysts – it was revealed that the issue of qualitative renewal of the public management system has been raised for a long time and specialists at all levels of government and society are involved in its solution. It was concluded that the main factor that contributed to the awareness of the need for transformational changes in the national public management system was the choice of the European integration path of state development, and this process was accelerated by Ukraine's obtaining the status of a candidate for membership in the European Union [52]. It is determined that now there are a number of unresolved problems – corruption schemes, extreme bureaucratisation of all stages of interaction in public policy – but positive results, such as the activation of decentralisation, digitalisation, active use of new information and communication technologies in the practice of public management, contribute to the indirect overcoming of the above-mentioned problems in the future [53, 54]. Modernisation of the functional structure of public management in Ukraine will have quite a positive effect for the further development of the state, especially through the prism of post-war reconstruction and in order to develop a democratic, legal entity in the international arena in a global context.

Considering the system of public management in Ukraine in the context of its transformation and adaptation to modern conditions of global development, it is worth noting significant progress in this area. However, there are a number of industries and areas where renewal and modernisation are a priority task in the near future. Practical recommendations for speeding up the modernisation process relate to such components as: social and humanitarian sphere, regulatory aspect, resource opportunities. Thus, the renewal of the social and humanitarian component should include the following steps: improving the material support and technical base of the public sphere; implementing new innovative solutions, relevant mechanisms, and practical processes in the public activities of the industry; launching highly specialised programmes and systems to improve the activities and minimise the bureaucratisation of the work of all participants in the public management system, expanding the possibilities of digitalisation of the public sphere. The legal aspect includes proposals to improve the legislative framework of public administration (in particular, the development of a new strategy for the development of public management and administration in Ukraine); the investigation of European and international experience and the development of its own regulatory and methodological documents based on it, considering the specifics of national legislation; the exchange of practical experience, and positive cases of work with colleagues from other countries by public servants. It is recommended to develop resource opportunities by creating appropriate funds (with the participation of the state – in different proportions with other participants in relations) for the implementation of joint projects and programmes on decentralisation, self-government, community development.

5. Conclusions

Having considered the specifics of the functioning and development of the public management system in Ukraine in the context of determining the main ways and vectors of its modernisation in the context of building the capacity of government structures and society as a whole to implement the tasks of post-war renewal of the country, a number of conclusions can be drawn.

The issue of modernisation of all components of Ukrainian public management became relevant in the early 1990s – after the Ukrainian state gained independence. This desire was determined by the need to develop on an equal footing with advanced democratic countries and create a national system of effective public management. The need for an inevitable reform of public management was supported by all government institutions and work in this area began almost immediately. However, its success was mixed: along with positive results, such as the development of decentralisation and the introduction of new information and communication technologies in the management system, there were extremely negative trends – corruption, excessive bureaucratisation. The need to modernise the public management system to increase the level of interaction between civil society and the state is reflected in attempts to transform the public sphere through, mainly, the implementation of world experience and the exchange of knowledge and skills with European colleagues. Representatives of central and local authorities demonstrate their understanding that without the implementation of a strategic approach to solving complex problems and contradictions of public life, without a qualitative renewal of the public service system and public management in general, the effective development of Ukraine as a modern democratic and rule-of-law state is impossible.

For the purpose of a more thorough analysis of the features of the functioning of the national public management system in the context of determining ways to improve it and update the activities of basic elements, for further research, it is advisable to study the issues of modernisation of public administration in the process of Ukraine's accession to the European Union through the prism of developing a new strategy for the improvement of public management depending on the duration of the process – from several years to several decades. The originality consists in identifying key factors and mandatory conditions for the modernisation of the public management system in Ukraine in the context of the deployment of new geopolitical processes through the prism of the post-war renewal of Ukrainian society.

6. References

- Goncharuk, N., Cherednychenko, A. 2022. Modernisation of public administration in Ukraine during the war and in the post-war period in the context of European values. *Public Administration Aspects*, 10(6), 46-54.
- Zubchyk, O.A., Kovalchuk, M.M., Magerramov, A., Wenger-Rushchenko, Y.V. 2023. Project management is a way to increase the

efficiency of the public management system in conditions of complexity and uncertainty. *Scientific Innovations and Advanced Technologies*, 28(14), 85-101.

- Primush, R. 2022. The role of digitalization in the system of public administration in the sphere of national and civil security in Ukraine. *Bulletin of the National University of Civil Protection of Ukraine. Series Public Administration*, 17(2), 323-329.
- Kormych, L.I., Kormych, A.I. 2021. Conceptual principles of public authority and governance reform and implementation of a "service state" model in Ukraine. *Actual Problems of Politics*, 67, 5-12.
- Khadzhyradieva, S., Shevtsova, J. 2021. Efficiency of implementation European reform support programs public governance in Ukraine. *Public Administration and Regional Development*, 3, 797-816.
- Constitution of Ukraine. 1996. https://zakon.rada.gov.ua/laws/show/254%D0%BA/96-%D0%B2%D1%80#Text
- Order of the National Agency of Ukraine on Civil Service of Ukraine No. 158 "On the Approval of the General Rules of Moral Behavior of Civil Servants and Local Government Officials". 2016. https://zakon.rada.gov.ua/laws/show/z1203-16#n13
- Strategy for Reforming the Public Administration of Ukraine on 2022-2025. 2021. https://par.in.ua/contents/onovlennia-statehii-reformuvannia-derzhavnoho-upravlinnia-do-2025-roku
- Ukraine Has Received the Status of a Candidate for EU membership. 2022. https://www.kmu.gov.ua/news/ukrayina-otrimala-status-kandidata-na-chlenstvo-v-yes
- The Global State of Democracy 2023. 2022. https://www.idea.int/publications/catalogue/global-state-democracy-2023-new-checks-and-balances
- Freedom House about Crimes on the Basis of Hatred in Ukraine. 2021. https://freedomhouse.org/sites/default/files/2022-06/FH-AnnualReport2021-UA_v01.pdf

- Most Democratic Countries. 2023. https://wisevoter.com/country-rankings/most-democratic-countries/
- Democracy Index. 2023. https://ourworldindata.org/grapher/democracy-index-eiu?tab=table
- The world's most, and least, democratic countries in 2022. 2023. https://www.economist.com/graphic-detail/2023/02/01/the-worlds-most-and-least-democratic-countries-in-2022
- E-Government Development Index. 2022. https://publicadministration.un.org/egovkb/Data-Center
- How Ukraine's Positions in International Ratings Have Changed in 2022. 2023. https://www.slovoidilo.ua/2023/01/09/infografika/svit/yak-zminylysya-pozycziyi-ukrayiny-mizhnarodnyx-rejtynhax-2022-roczi
- Shigal, D.A. 2018. *History of the state and law of Ukraine*. Kharkiv: Pravo.
- McDonald, B.D., Hall, J.L., O'Flynn, J., van Thiel, S. 2022. The future of public administration research: An editor's perspective. *Public Administration*, 100, 59-71.
- Estoquia, R.A., Gordovez, R.P., Jayona, A., Jorvina, J., Jorvina, P.X., Kho, J.T. 2022. Political context of public administration. https://www.researchgate.net/publication/361248482_Political_Context_of_Public_Administration
- Ndreu, A. 2016. The definition and importance of local governance. *Social and Natural Sciences Journal*, 10(1), 5-8.
- Thapa, I. 2020. Public administration: Meaning, scope and its nature. https://www.researchgate.net/publication/342876516_Public_Administration_Meaning_Scope_and_Its_Nature
- Kilonzo, S., Ojebode, A. 2022. Research methods for public policy. In: *Public Policy and Research in Africa* (pp. 63-85). Cham: Palgrave Macmillan.
- Qawasmeh, F.A. 2022. Understanding the field of public policy in the context of public administration evolution. In: *Public Affairs Education and Training in the 21st Century* (pp. 22-44). Hershey: IGI Global.

- Barbier, L., Tengeh, R.K. 2023. Literature review of public administration and good governance from 1890 to 2023. *Jurnal Transformative*, 9(1), 43-65.
- Rocha, J.A.O., Zavale, G.J.B. 2021. Innovation and change in public administration. *Open Journal of Social Sciences*, 9, 285-297.
- Bauer, M.W. 2018. Public administration and political science. In: *The Palgrave Handbook of Public Administration and Management in Europe* (pp. 1049-1065). London: Palgrave Macmillan.
- Kotnik, Ž., Umek, L., Kovač, P., Stanimirovic, D., Vintar, M. 2020. Analysis of the key factors for successful public policy implementation: A qualitative study in Slovenia. *Law, Economics and Social Issues Review*, 11(2), 113-140.
- Liakh, Yu.I. 2020. Foreign experience of modernization of public administration and prospects of its application in Ukraine. *Scientific Bulletin of Public Administration*, 4(2), 228-238.
- Nemec, J., de Vries, M.S. 2015. Local government structure and capacities in Europe. *Public Policy and Administration*, 14(3), 249-267.
- Volska, O. 2020. Public management as a systemic phenomenon in modern society. *Tauride Scientific Bulletin. Series: Economics*, 3, 15-20.
- Kuhlmann, S., Wayenberg, E., Bergström, T., Franzke, J. 2021. The essence and transformation of local self-government in Western Europe. In: *The Future of Local Self-Government* (pp. 1-14). Cham: Palgrave Macmillan.
- Away, F., Simamora, B., Nadeak, S., Nugraha, M., Prasetia, I., Hendriarto, P. 2021. Decentralization, centralization and quality of organizational performance of human resources. *Academy of Strategic Management Journal*, 20(3). https://www.abacademies.org/articles/Decentralization-centralization-and-quality-of-organizational-performance-of-human-resources-1939-6104-20-3-770.pdf
- Thapa, I. 2020. Local government: Concept, roles and importance for contemporary society. https://tunjung.umy.ac.id/wp-content/uploads/2021/10/LocalGovernment_ConceptRolesandImport

anceforContemporarySociety.pdf

- Schrepel, T. 2021. Decentralization? In: *Blockchain + Antitrust* (pp. 51-66). Cheltenham: Edward Elgar Publishing.
- Law of Ukraine No. 280/97-BP "On Local Self-Government in Ukraine". 1997. https://ips.ligazakon.net/document/Z970280
- Law of Ukraine No. 2804 "On the Principles of Administrative and Territorial Structure". 2020. https://ips.ligazakon.net/document/JI01265A
- Karataş, A. 2020. Local governments and evaluation of local governance tools in the context of the governance approach. *Social Mentality and Researcher Thinkers Journal*, 6(39), 2663-2674.
- Ksonzhyk, I., Taran, Y., Monastyrskyi, G., Vasina, A., Sytnytska, O., Belei, S. 2021. Implementation of the principles of sustainable development of territorial communities: Decision making. *Journal of Management Information and Decision Sciences*, 24(3), 1-12.
- Vasina, A., Monastyrskyi, G., Ivanova, V., Maistrenko, K., Tsal-Tsalko, Y. 2023. Concepts of sustainable public administration: Perspectives and challenges. *Amazonia Investiga*, 12(71), 252-262.

Avazbek Sodikov
Doctor of Economics, Department of State and Corporate Strategies, National University of Uzbekistan named after Mirzo Ulugbek
a-sodikov@outlook.com
Sherzod Otaboyev
PhD, Institute of Macroeconomic and Regional Studies under the Cabinet of Ministers
s_otaboyev@hotmail.com
Sayidfozil Zokirov
Doctor of Economics, Department of State and Corporate Strategies, National University of Uzbekistan named after Mirzo Ulugbek
s.zokirov@outlook.com
Nilufar Komilova
Professor, Full Doctor, Department of Ecology, National University of Uzbekistan named after Mirzo Ulugbek
komilovanilufar391@gmail.com
Sulaymon Tangriberdiev
PhD, Institute of Macroeconomic and Regional Studies under the Cabinet of Ministers
tangriberdievsul4@hotmail.com

Theoretical foundations for State regulation of regional development

Abstract

The purpose of the article was to examine the effectiveness of state regulation in fostering balanced regional development. The research methodology involved a comprehensive theoretical analysis of legislative frameworks, governance strategies, and funding mechanisms that support regional development. Particular attention was given to examining how centralized policies can be adapted to address local needs and how investments in institutional and human capital contribute to long-term stability and resilience. The results of the study highlighted the critical role of human capital and institutional quality in achieving regional socio-economic cohesion. The research identified targeted policy tools, such as state funding programs and economic incentives, as essential for reducing regional disparities. Additionally, the study demonstrated how strategic governance frameworks can align centralized objectives with local implementation, facilitating regional sustainability. The analysis of international experiences in regional development highlighted the importance of central coordination in implementing effective regional policies. The case studies from the Czech Republic and Latvia illustrated the critical role of specialized ministries and agencies in managing territorial development and ensuring the equitable distribution of resources across regions. A modelling and forecasting analysis were conducted to assess the long-term consequences of proposed strategies and their impact on key factors such as economic balance, social justice, and environmental sustainability. The conclusions indicate that balanced regional development requires an integrated approach that includes investments in governance quality, infrastructure, and institutional capacity. The findings are particularly relevant for regions facing structural deficiencies and economic stagnation, offering insights into how such challenges can be addressed through adaptive policy measures.

Keywords: management, socio-economic processes, decentralization, economic resources, financing.

1. Introduction

Theoretical foundations for state regulation of regional development hold paramount importance in addressing the growing socioeconomic disparities across regions. Uneven development poses challenges such as migration from underdeveloped areas to urban centres, resource misallocation, and increased regional inequality, which can lead to social instability. By establishing a robust theoretical framework, policymakers can ensure balanced growth, optimize resource utilization, and foster a more equitable society. This research topic is particularly pertinent in an era where globalization and technological advancement simultaneously enhance and exacerbate these disparities.

Moreover, state regulation serves as a pivotal mechanism for mitigating market failures and addressing regional disparities that market forces alone cannot resolve. Historical and contemporary approaches to state intervention provide critical insights into strategies for sustainable development and regional cohesion. Examining these theories enabled a better understanding of how to adapt classical economic principles to modern challenges, including digital transformation, environmental sustainability, and the integration of marginalized regions into the national economy. By identifying best practices and innovative solutions, this research contributes to bridging the gap between theory and practice in regional policy development.

A. Thomas[1] reinterpreted the concept of demand in the works of Adam Smith and David Ricardo, emphasizing the interconnection between "effective demand" and "market size". The study highlighted the social nature of demand and its dual impact on economic growth from both demand and supply perspectives, suggesting the analytical significance of demand in classical theories. P. Ghisellini et al.[2] analysed the evolution and crisis of John Maynard Keynes' theory in the context of neoliberal dominance, assessing its effects on global economic and societal sustainability. The study identifies tensions between Keynesian principles and contemporary market-driven policies, which is crucial for understanding the role of the state in mitigating economic crises and achieving sustainable development. The work of S. Brandes[3] critiqued the portrayal of "market individuals" prioritizing self-interest over state involvement, presenting the government as an adversary. This work highlighted ideological shifts that challenge the legitimacy and efficiency of state intervention in regional development.

D. Meadows and J. Randers[4] focused on macroeconomic and regional policies aimed at improving the quality and quantity of production factors for sustainable development. The emphasis on sustainability aligns with modern goals of regional development, providing a framework for balancing economic, social,

1 Thomas, A.M. 2021. On "effectual demand" and the "extent of the market" in Adam Smith and David Ricardo. *The European Journal of the History of Economic Thought*, 28(3), 305-323. https://doi.org/10.1080/09672567.2020.1817120

2 Ghisellini, P., Passaro, R., Ulgiati, S. 2021. Revisiting Keynes in the light of the transition to circular economy. *Circular Economy and Sustainability*, 1(1), 143-171. https://doi.org/10.1007/s43615-021-00016-1

3 Brandes, S. 2020. The market's people: Milton Friedman and the making of neoliberal populism. In: W. Callison & Z. Manfredi (Eds.), *Mutant Neoliberalism: Market Rule and Political Rupture* (pp. 61-88). New York: Fordham University Press. https://pure.mpg.de/rest/items/item_3193042/component/file_3501298/content

4 Meadows, D., Randers, J. 2012. *The limits to growth: The 30-year update*. London: Routledge. https://doi.org/10.4324/9781849775861

and environmental objectives. Research of A. Thirlwall[5] advanced ideas from new growth theory and Paul Krugman's new economic geography, addressing persistent regional and national disparities in growth rates and income levels. C. Ding et al.[6] examined the role of technological innovations in the digital economy's influence on economic development. The authors recommend targeted digitalization strategies to reduce regional imbalances, which is particularly relevant for crafting modern state-driven regional development policies. A. Maiev[7] investigated regional policy formation in France, focusing on mechanisms for reducing interregional disparities and promoting development within a decentralized framework. This study highlights the potential application of France's best practices in Ukraine, offering comparative insights for administrative-territorial reform.

The work of I. Kostetska[8] explored strategic planning principles for rural development in Ukraine and compares them with Poland's strategic planning system. The research emphasizes the transition from subsidies to grant funding as a pathway to improved efficiency, which offers actionable lessons for enhancing regional development strategies. A. Rodríguez-Pose and T. Ketterer[9] evaluated the impact of governance quality on regional productivity in the EU. The findings underscore the importance of governance improvements in fostering regional growth, particularly in underdeveloped regions. R. Crescenzi and M. Giua[10] analysed the impact of EU cohesion policies on regional growth and employment

---

5 Thirlwall, A.P. 2014. Kaldor's 1970 regional growth model revisited. *Scottish Journal of Political Economy*, 61(4), 341-347. https://doi.org/10.1111/sjpe.12048

6 Ding, C., Liu, C., Zheng, C., Li, F. 2021. Digital economy, technological innovation and high-quality economic development: Based on spatial effect and mediation effect. *Sustainability*, 14(1), 216. https://doi.org/10.3390/su14010216

7 Maiev, A. 2022. Ensuring regional development under decentralization: French experience for Ukraine. *Studia Sieci Uniwersytetów Pogranicza*, 6, 97-119. https://doi.org/10.15290/sup.2022.06.08

8 Kostetska, I. 2023. Application of strategic planning in rural development: The case of Poland for Ukraine. *Green, Blue and Digital Economy Journal*, 4(4), 7-18. https://doi.org/10.30525/2661-5169/2023-4-2

9 Rodríguez-Pose, A., Ketterer, T. 2020. Institutional change and the development of lagging regions in Europe. *Regional Studies*, 54(7), 974-986. https://doi.org/10.1080/00343404.2019.1608356

10 Crescenzi, R., Giua, M. 2020. One or many Cohesion Policies of the European Union? On the differential economic impacts of Cohesion Policy across member states. *Regional Studies*, 54(1), 10-20. https://doi.org/10.1080/00343404.2019.1665174

using spatial regression discounting. Their findings indicate that while cohesion policies yield positive effects, the distribution of benefits is uneven, with limited and unstable impacts in Southern Europe.

The reviewed works provide a robust theoretical foundation for state regulation in regional development. They highlight the interplay between market mechanisms, state intervention, governance quality, and sustainability. Additionally, they illustrate how policy frameworks can address regional disparities and align development efforts with broader economic goals. Despite their contributions, the reviewed works do not extensively address specific mechanisms for balancing traditional growth factors with innovative approaches in state-regulated regional policies and comparative analysis of state regulation practices across various governance systems, particularly in the context of transitioning economies.

The purpose of this research was to develop a theoretical framework for state regulation of regional development that addresses contemporary challenges such as economic globalization, technological advancement, and environmental sustainability, while leveraging innovative strategies to reduce disparities and promote balanced and sustainable growth. The research tasks were revised as follows: to analyse historical and contemporary theories of state regulation in regional development, taking into account current global challenges; to develop a comparative model of state regulation that integrates the experiences of developed and transitioning economies; to propose innovative strategies for state regulation aimed at reducing regional disparities and ensuring sustainable development.

2. Materials and methods

The research employed a comprehensive combination of methods, including analysis, synthesis, comparison, and modelling, to examine regional development with a focus on state regulation and the mitigation of regional disparities. The analytical method was used to conduct an in-depth study of legal frameworks, policy documents, and academic models concerning state regulation of regional development. Special attention was devoted to the experiences of European countries, particularly Latvia and the Czech Republic. Key legislative documents analysed included the work by J.-C. Frecon and P. Leuba[11], the Law of the Republic of Latvia No. 41 "On Budget and Financial Management"[12], and the Law of the Republic of Latvia No. 118 "On Financial Adjustment of Municipalities"[13]. This analysis was further enriched by exploring European Union financial instruments to contextualize the administrative and economic mechanisms that support regional development. These instruments included the European Regional Development Fund (2024), the Cohesion Fund[14], the European Agricultural Guarantee Fund[15], and the Financial Instrument for Fisheries Guidance[16]. These funding tools were examined in terms of their objectives, operational mechanisms, and effectiveness in promoting balanced territorial development.

The comparative method was applied to develop a detailed table that highlights regional development practices in Latvia, the Czech Republic, Germany, Bulgaria, Italy, Tajikistan, and Kazakhstan. This comparative analysis explored the functions and powers of state institutions responsible for integrated territorial development, providing insights into similarities and differences in governance frameworks, institutional capacities, and policy approaches.

The modelling method played a crucial role in the theoretical exploration of economic regulatory models. The study examined classical models such as the Classical Model[17], the Keynesian Model[18], and the Monetarist Model[19], alongside

---

11 Frecon, J.-C., Leuba, P. 2011. Local and regional democracy in Latvia. https://rm.coe.int/168071a836

12 Law of the Republic of Latvia No. 41 "On Budget and Financial Management". 2005. https://likumi.lv/ta/id/58057-likums-par-budzetu-un-finansu-vadibu

13 Law of the Republic of Latvia No. 118 "On Financial Adjustment of Municipalities". 2010. https://likumi.lv/ta/id/274742-pasvaldibu-finansu-izlidzinasanas-likums

14 Cohesion Fund. 2024. https://ec.europa.eu/regional_policy/funding/cohesion-fund_en

15 European Regional Development Fund. 2024. https://ec.europa.eu/regional_policy/funding/erdf_en

16 Council Regulation No. 1263/1999 "On the Financial Instrument for Fisheries Guidance". 1999. https://eur-lex.europa.eu/EN/legal-content/summary/fifg-financial-instrument-for-fisheries-guidance.html

17 Smith, A. 2002. *An inquiry into the nature and causes of the wealth of nations*. London: Methuen & Co. https://www.econlib.org/library/Smith/smWN.html

18 Keynes, J.M. 2018. The general theory. In: J.M. Keynes (Eds.), *The General Theory of Employment, Interest, and Money* (p. 3). Cham: Palgrave Macmillan. https://doi.org/10.1007/978-3-319-70344-2_1

19 Friedman, B.M., Woodford, M. 2010. *Handbook of monetary economics*. London: Elsevier. https://shop.elsevier.com/books/handbook-of-monetary-economics/friedman/978-0-444-53454-5

contemporary approaches like the Ethos Model[20], the Liberal Model[21], and the Mixed Model[22]. These models were analysed for their relevance to regional development, their mechanisms for addressing socio-economic inequalities, and their potential application in modern governance structures. By employing these methods, the research systematically addressed the complexities of regional development and state regulation. The multi-method approach ensured a robust analysis of the issue and facilitated the formulation of practical recommendations. This methodology provided a foundation for understanding the interaction between legislative, economic, and governance frameworks in achieving sustainable and equitable regional development.

For modelling, the scenario analysis method was applied, which allows for the assessment of the impact of key strategies on territorial development based on three main parameters: economic balance, social justice, and environmental sustainability. The research utilized a multidisciplinary methodological framework, combining legal, economic, and comparative analysis to study the regulation of regional development comprehensively. Comparative Method was instrumental in analysing governance systems across different countries, focusing on legislative frameworks, administrative structures, and fiscal mechanisms. By comparing Latvia and the Czech Republic this approach identified best practices and adaptable strategies. Legal Analysis Method was central to this study, focusing on the examination of national and EU legislative documents. This method explored the relationship between centralized policies and decentralized implementation, with particular attention to administrative-territorial reforms and fiscal regulations. By identifying overlaps and gaps in legal frameworks, the study aimed to uncover opportunities for harmonized regional development strategies.

---

20 Merzlyakova, D.R., Miroshnichenko, A.A., Baranov, A.A., Popkov, A.V., Ivanova, N.P. 2022. Human and the foodnet market: On the formation of the agricultural producer ethos (psychological and pedagogical aspect). *IOP Conference Series: Earth and Environmental Science*, 949, 012042. https://doi.org/10.1088/1755-1315/949/1/012042

21 Fernández-Lombao, T., Blasco-Blasco, O., Freire, F.C. 2024. Politicisation persists and is increasing in European public service media in the digital society. *Media and Communication*, 12, 7759. https://doi.org/10.17645/mac.7759

22 Zhong, X., Zhou, S., Yu, X. 2024. Land market misallocation, regional integration, and economic growth: Evidence from the Yangtze River Delta Region, China. *Public Administration and Development*, 44(1), 17-31. https://doi.org/10.1002/pad.2033

Systemic-Structural Analysis was applied to evaluate the interrelations among state institutions involved in territorial governance. It allowed for the identification of hierarchical structures and processes critical for implementing integrated development strategies. Special attention was given to the alignment between national policies and regional needs, examining how institutional frameworks support or hinder development objectives. The study also included a detailed analysis of economic models relevant to state regulation of regional development. The classical, Keynesian, monetarist, Ethos, liberal, and mixed models were analysed in terms of their alignment with the socio-economic characteristics of specific regions. By employing these methods, the research provided a comprehensive understanding of the theoretical and practical dimensions of state regulation in regional development.

3. Results

3.1. Analysis of historical and contemporary theories of state regulation in regional development considering current global challenges

Global experience demonstrates that sustainable regional development, as well as the regulation of associated processes, is primarily achieved through state territorial policy. Such policies are implemented through a multifaceted approach that integrates economic, social, and national dimensions. Territorial economic policies aim to optimize the distribution and utilization of resources, ensuring balanced economic growth across regions. Simultaneously, territorial social policies address the socio-economic inequalities between regions, enhancing access to public services and improving the quality of life[23].

National policies serve to align regional development goals with the broader objectives of national governance, fostering cohesion and preventing disparities that may undermine social and economic stability. The successful implementation of these policies relies on a robust methodological foundation and the ability of governments to adapt strategies to the unique characteristics of each region, including its socio-economic structure, cultural heritage, and environmen-

23 Branca, G. 2012. Civil society organization in the Mediterranean area: Societal role, challenges, dynamics. https://esarn27sassari2012.wordpress.com/wp-content/uploads/2012/10/giampiero-branca-paper-for-esa-conference-2012.pdf

tal conditions.

State territorial policy encompasses a comprehensive framework for the regulation and management of regional development[24]. This policy integrates economic, social, and administrative dimensions, each contributing to the sustainable and balanced growth of regions within a country. Its formulation and implementation rely on extensive analysis and strategic planning, reflecting the complexities of regional governance in the modern era.

In the economic domain, territorial policy addresses the spatial distribution and economic structure of regions. This involves the study of interregional and international economic linkages, the localization and advancement of productive forces, and the execution of in-depth analyses to identify potential development opportunities. By assessing economic disparities and resource allocation efficiency, territorial policy aims to promote balanced regional growth and enhance overall national economic stability[25,26].

In the social sphere, the focus of territorial policy shifts to demographic and societal factors that influence regional development. Key areas of concern include population dynamics such as settlement patterns, birth and mortality rates, and natural population growth. Additionally, policies target the reduction of unemployment and the promotion of workforce participation, addressing migration trends and ensuring adequate access to essential resources such as natural gas, clean water, and housing[27,28]. Social infrastructure, including education and healthcare systems, is also prioritized, with an emphasis on

---

24 PAVLOVSKYI, O., BLIKHAR, M., AKIMOVA, L., KOTSUR, V., AKIMOV, O., KARPA, M. 2024. International migration in the context of financial and economic security: The role of public administration in the development of national economy, education, and human capital. *Edelweiss Applied Science and Technology*, 8(6), 1492–1503. https://doi.org/10.55214/25768484.v8i6.2265

25 MIKHNO, I., IHNATENKO, N., CHERNIAIEV, O., VYNOGRADNYA, V., ATSTAJA, D., KOVAL, V. 2023. Construction waste recycling in the circular economy model. *IOP Conference Series: Earth and Environmental Science*, 1126(1), 012003. https://doi.org/10.1088/1755-1315/1126/1/012003

26 IHNATENKO, M., ANTOSHKIN, V., POSTOL, A., HURBYK, Y., RUNCHEVA, N. 2020. Features of the content and implementation of innovation and investment projects for the development of enterprises in the field of rural green tourism. *International Journal of Management*, 11(3), 304-315. https://doi.org/10.34218/IJM.11.3.2020.033

27 GIYASOVA, Z., GULIYEVA, S., AZIZOVA, R., SMIECH, L., NABIYEVA, I. 2025. Relationships between human development, economic growth, and environmental condition: The case of South Korea. *Environmental Economics*, 16(2), 73–83. https://doi.org/10.21511/ee.16(2).2025.06

improving the quality and accessibility of services to foster equitable development across regions.

In terms of governance, territorial policy is deeply rooted in the principles of strategic and indicative planning[29]. Activities in this area encompass forecasting regional trends, developing general and sector-specific plans, and enhancing the efficiency of local self-governance systems. These efforts are supported by institutional reforms aimed at optimizing the management of socio-economic development at the regional level. Effective governance frameworks are essential to ensuring the coherence and alignment of regional policies with national objectives, enabling responsive and adaptive decision-making processes. Two primary approaches dominate the contemporary practice of territorial policy formulation: the "equalization policy" exemplified by Germany[30] and the "growth pole theory" rooted in France[31].

The equalization policy aims to support underdeveloped regions by channelling budgetary resources from more prosperous areas. This redistributive mechanism seeks to mitigate regional disparities and foster accelerated development in economically disadvantaged territories[32]. The justification for this policy lies in addressing environmental instability, economic stagnation, and adverse market conditions, which often characterize lagging regions. By providing targeted fi-

28 Hasanov, R.I., Vasa, L., Guliyeva, S., Giyasova, Z., Shakaraliyeva, Z. 2025. Assessing the impact of oil prices and inflation on bank deposits in Azerbaijan. *Banks and Bank Systems*, 20(1), 11–22. https://doi.org/10.21511/bbs.20(1).2025.02

29 Hrinchenko, H., Trishch, R., Mykolaiko, V., Kovtun, O. 2023. Qualimetric approaches to assessing sustainable development indicators. *E3S Web of Conferences*, 408, 01013. https://doi.org/10.1051/e3sconf/202340801013

30 Jerković, E. 2023. Fiscal equalization as a function of regional development. In Economic and social development. In: I. Kovač, P. Misević, A. Zahariev (Eds.), *105th International Scientific Conference on Economic and Social Development – "Building Resilient Society"* (pp. 214-226). Varaždin: Varazdin Development and Entrepreneurship Agency and University North. https://esd-conference.com/upload/book_of_proceedings/Book_of_Proceedings_esdZagreb2023_Online.pdf#page=220

31 Joaquim, I.M., Armando, R., Tundumula, E. 2022. Theoretical approach of growth poles and export base theories in economic development of Mozambique. *Asian Journal of Management, Entrepreneurship and Social Science*, 2(3), 70-98. https://mail.ajmesc.com/index.php/ajmesc/article/view/31

32 Spanov, M., Nurgalieva, K., Ussenova, A. 2019. Theoretical and methodological bases of formation of petrochemical clusters. *Espacios*, 40(14). https://www.revistaespacios.com/a19v40n14/a19v40n14p10.pdf

nancial assistance, governments strive to create a more balanced and cohesive economic landscape[33].

Conversely, the growth pole theory, developed by French regional economists François Perroux and Jean Boudeville in the 1950s, advocates for the concentration of resources in strategically selected regions or "growth poles"[34]. This approach emphasizes the role of dynamic centres in driving regional and national economic development. The theoretical foundation of growth poles lies in the belief that economic growth in these hubs will generate positive spill over effects, ultimately benefiting the broader regional structure. This approach aligns with modern concepts of regional competitiveness and innovation-driven development, where investments in advanced industries and infrastructure catalyse broader economic progress.

The study of European experience provides invaluable insights into the design and implementation of effective territorial policies. Regional policy within the European Union operates on multiple levels, engaging stakeholders at the European, national, and regional tiers[35]. This multi-level governance framework fosters collaboration among experts, policymakers, and practitioners, ensuring that regional strategies reflect both localized needs and overarching European objectives. European regional policy emphasizes cohesion, aiming to reduce disparities between member states and regions. Initiatives such as the European Regional Development Fund[36] and the Cohesion Fund[37] support investments in infrastructure, innovation, and human capital. These programs exemplify the integration of equalization and growth pole approaches, combining targeted support for underdeveloped regions with the promotion of competitiveness in leading economic centres.

---

33 Abbasova, S., İsmayilov, V., Trusova, N. 2023. Problems of financing the state budget deficit. *Scientific Bulletin of Mukachevo State University. Series Economics*, 10(4), 9–19. https://doi.org/10.52566/msu-econ4.2023.09

34 Perroux, F. 1950. Economic space: theory and applications. *The Quarterly Journal of Economics*, 64(1), 89-104. https://doi.org/10.2307/1881960

35 Dąbrowski, M., Bachtler, J., Bafoil, F. 2014. Challenges of multi-level governance and partnership: Drawing lessons from European Union cohesion policy. *European Urban and Regional Studies*, 21(4), 355-363. https://doi.org/10.1177/0969776414533020

36 European Regional Development Fund. 2024. https://ec.europa.eu/regional_policy/funding/erdf_en

37 Cohesion Fund. 2024. https://ec.europa.eu/regional_policy/funding/cohesion-fund_en

By adopting and adapting these methodologies, countries can enhance the effectiveness of their territorial policies, addressing both immediate challenges and long-term development goals. The integration of diverse approaches and best practices ensures that territorial policy remains a dynamic and responsive tool for achieving sustainable and inclusive regional development[38].

The European Union employs a comprehensive framework of mechanisms to promote balanced regional development, primarily through the application of four structural funds. These are the European Regional Development Fund[39], the European Agricultural Guarantee Fund[40] and the Financial Instrument for Fisheries Guidance[41]. Each of these funds is designed to address specific regional, social, and sectoral challenges, with a focus on ensuring cohesion and sustainable growth across all member states. The structural funds target various objectives, including: structural reconstruction and development of disadvantaged territories, revitalization of industrially declining regions (special attention is given to areas severely impacted by a reduction in industrial production, promoting diversification and innovation to reintegrate these regions into the broader economy), support for sparsely populated regions (assistance is directed toward regions with extremely low population densities to mitigate depopulation challenges and enhance socio-economic resilience) and reduction of long-term unemployment[42,43]. Through initiatives aimed at job creation, vocational training, and retraining programs, the funds address systemic unemployment and provide opportunities for marginalized groups such

---

38 Narzullaeva, O., Mukasheva, A., Sadikova, D. 2025. Ensuring Legal Protection of Biological Diversity Regulations for Safeguarding Ecosystem. *Journal of Human Rights, Culture and Legal System*, 5(2), 531–553. https://doi.org/10.53955/jhcls.v5i2.515

39 European Regional Development Fund. 2024. https://ec.europa.eu/regional_policy/funding/erdf_en

40 European Agricultural Guarantee Fund. 2024. https://commission.europa.eu/funding-tenders/find-funding/eu-funding-programmes/european-agricultural-guarantee-fund-eagf_en

41 Council Regulation No. 1263/1999 "On the Financial Instrument for Fisheries Guidance". 1999. https://eur-lex.europa.eu/EN/legal-content/summary/fifg-financial-instrument-for-fisheries-guidance.html

42 Hasanova, J., Najafova, K. 2024. Development of Trade-Econimic Relations between Azerbaijan-EU Countries in the Field of Natural Gas Supply. *WSEAS Transactions on Business and Economics*, 21, 1104–1114. https://doi.org/10.37394/23207.2024.21.92

43 Hasanova, J., & Najafova, K. 2025. Research and analysis of opportunities for regional economic integration among the countries of the Organization of Turkic States. *Economics of Development*, 24(2), 54-67. https://doi.org/10.63341/econ/2.2025.54

as youth and displaced workers.

Structural transformations in agriculture are supported to enhance productivity, ensure food security, and foster the sustainable development of rural areas. These mechanisms exemplify a balanced approach to addressing the diverse needs of regions, highlighting the EU's commitment to equitable development across its territory.

3.2. Development of a comparative model of state regulation integrating the experiences of developed and transitioning economies

State regulation of economic and regional processes is a universal practice, implemented in all countries to varying degrees and at different stages of development. While the extent and focus of state intervention depend on the socio-economic context, global experience underscores the indispensability of state involvement in ensuring sustainable and balanced development. The role of the state becomes particularly critical during periods of radical economic reform and when new territorial policies are being implemented.

Market mechanisms, although efficient in resource allocation, often fail to address several fundamental aspects of regional and national development. Key limitations of the free market in this regard include inadequate macroeconomic stability and territorial balance, because market forces alone cannot ensure an equitable distribution of resources or balanced economic growth across regions, leading to spatial disparities. The market does not inherently prioritize societal goals such as education, healthcare, and social welfare, nor does it adequately support scientific, technical, and economic innovation critical for long-term growth, besides market mechanisms often exacerbate income inequalities and social disparities, undermining societal cohesion and economic security. Rapid global changes require proactive legal and institutional frameworks, which market-driven systems are not equipped to implement effectively, so without state intervention, regions may experience uncontrolled growth or decline, leading to socio-economic and environmental imbalances.

The consequences of non-intervention by the state in regional and macroeconomic processes are profound. They include widening income disparities, increased social instability, depletion of natural resources, and growing inequities in socio-economic development across regions. These challenges necessitate a robust framework of state regulation that integrates macroeconomic and territorial policies.

The experiences of both developed and developing nations demonstrate that a balanced and sustainable approach to regional development is unattainable without active state regulation. Effective state policies address the inherent shortcomings of the market, ensuring that development initiatives are inclusive, equitable, and aligned with national priorities. For instance, state intervention facilitates the establishment of mechanisms to promote macroeconomic stability through fiscal and monetary policies tailored to regional needs; ensure a balanced distribution of resources to reduce regional disparities and foster territorial cohesion; implement strategic planning frameworks that align socio-economic development with scientific, technical, and environmental objectives and safeguard economic security by addressing vulnerabilities in critical sectors and regions[44,45].

By leveraging tools such as structural funds, strategic planning, and targeted interventions, governments can mitigate disparities, enhance economic resilience, and ensure the long-term socio-economic stability of their regions. This interplay of market and state mechanisms remains essential for achieving cohesive and equitable development in a rapidly evolving global landscape.

In scholarly discourse, significant attention has been devoted to elucidating the role of the state in economic regulation through the development of various theoretical models. Among these, the classical model, articulated by A. Smith[46], emphasizes the principles of free-market self-regulation, minimal state intervention, and the efficient allocation of resources through the "invisible hand" mechanism. This approach advocates for a limited role of the state, primarily confined to ensuring property rights, upholding contracts, and providing

44 Arachi, G., Bucci, V., Longobardi, E., Panteghini, P.M., Parisi, M.L., Pellegrino, S., Zanardi, A. 2012. Fiscal reforms during fiscal consolidation: The case of Italy. *FinanzArchiv*, 68(4), 445–465. https://doi.org/10.1628/001522112X659574

45 Kanniainen, V., Panteghini, P.M. 2013. Tax neutrality: Illusion or reality? The case of entrepreneurship. *FinanzArchiv*, 69(2), 167–193. https://doi.org/10.1628/001522113X666926

46 Smith, A. 2002. *An inquiry into the nature and causes of the wealth of nations*. London: Methuen & Co. https://www.econlib.org/library/Smith/smWN.html

public goods that the market cannot efficiently supply.

Contrasting the classical view, the Keynesian model, advanced by J. Keynes[47], underscores the necessity of active state intervention, particularly in times of economic downturns. Keynes posited that market economies are prone to inefficiencies such as unemployment and underutilization of resources, which require corrective measures by the state. Through fiscal and monetary policies, including government spending and regulation of interest rates, the Keynesian model aims to stabilize economic cycles and ensure sustained growth. Further diversifying the theoretical landscape is the monetarist model, associated with economists such as B.M. Friedman and M. Woodford[48] and its application by policymakers like R. Reagan. This model prioritizes controlling the money supply to manage inflation and maintain economic stability, advocating for a reduction in state intervention in favour of free-market mechanisms. Monetarists emphasize the importance of predictable and rule-based monetary policies, as opposed to discretionary fiscal interventions.

In addition to these foundational models, the study of new conservative approaches has emerged, focusing on reducing state roles, deregulating economies, and emphasizing privatization as key components of economic governance. These approaches advocate for the minimization of state interference to foster market efficiency and individual entrepreneurship. Foreign scholars further classify economic regulation models into distinct typologies based on the degree and nature of state involvement: Ethos model characterized by a highly significant role of the state in regulating economic processes, where the government actively directs socio-economic development, often through centralized planning and intervention[49]. This model is prevalent in economies where state mechanisms are deeply integrated into economic management.

---

47 Keynes, J.M. 2018. The general theory. In: J.M. Keynes (Eds.), *The General Theory of Employment, Interest, and Money* (p. 3). Cham: Palgrave Macmillan. https://doi.org/10.1007/978-3-319-70344-2_1

48 Friedman, B.M., Woodford, M. 2010. *Handbook of monetary economics*. London: Elsevier. https://shop.elsevier.com/books/handbook-of-monetary-economics/friedman/978-0-444-53454-5

49 Merzlyakova, D.R., Miroshnichenko, A.A., Baranov, A.A., Popkov, A.V., Ivanova, N.P. 2022. Human and the foodnet market: On the formation of the agricultural producer ethos (psychological and pedagogical aspect). *IOP Conference Series: Earth and Environmental Science*, 949, 012042. https://doi.org/10.1088/1755-1315/949/1/012042

The liberal model reflects a predominance of market mechanisms, with the state assuming a minimal role in economic regulation[50]. In this framework, the market's self-regulatory capacity is considered sufficient for addressing economic challenges, with the state intervening only in exceptional circumstances. Mixed model integrates state-driven socio-economic management with market-based mechanisms, creating a hybrid approach[51]. This model seeks to balance state intervention and market autonomy, leveraging the strengths of both to address complex economic dynamics effectively. The scientific literature highlights that effective state regulation of regional development requires the integration of macroeconomic principles with localized strategies, recognizing the unique socio-economic characteristics of regions[52]. Theoretical foundations in this domain explore mechanisms for addressing regional inequalities, optimizing resource distribution, and fostering sustainable development through coordinated efforts between central and regional authorities.

Research on state regulation of regional development highlights the necessity of implementing diverse measures tailored to the unique needs of different regions. While state regulation is universally significant, it cannot adhere to a uniform methodology, as goals, priorities, and implementation strategies vary across socio-economic contexts. Priority directions for state regulation in regional development include establishing a comprehensive framework of legal, enforcement, and control measures involving state, private, and public organizations, aimed at adapting regional socio-economic units to market conditions. Additionally, actions must be refined to align with objective economic laws and legal criteria, utilizing regulatory mechanisms to mitigate market economy risks and promote resilience. Targeted regulation should focus on areas with concentrated production and capital, while regulation can occur at both a "narrow" scale, such as financial aid and subsidies, and a "broad" scale, creating favourable conditions for market

50 Fernández-Lombao, T., Blasco-Blasco, O., Freire, F.C. 2024. Politicisation persists and is increasing in European public service media in the digital society. *Media and Communication*, 12, 7759. https://doi.org/10.17645/mac.7759

51 Zhong, X., Zhou, S., Yu, X. 2024. Land market misallocation, regional integration, and economic growth: Evidence from the Yangtze River Delta Region, China. *Public Administration and Development*, 44(1), 17-31. https://doi.org/10.1002/pad.2033

52 Lisovets, I.S. 2023. Economic analysis of regional development in Ukraine. https://ir.kneu.edu.ua/items/3d22987c-4430-4e07-9577-16d9f6906577

mechanisms. Furthermore, state regulation encompasses targeted actions by central authorities to foster economic advancement in individual regions, often described as "territorial economic policy." Key principles of this policy include imposing restrictions on growth in economically advanced regions to address imbalances and stimulating development in less advantaged areas through targeted interventions like encouraging migration, establishing state-owned enterprises, and providing incentives. These strategies collectively emphasize the importance of a flexible and differentiated approach to regional development, ensuring balanced growth and effective integration of market and state mechanisms.

Market and state regulators are not used separately, but they complement each other. In this case, state regulation should be based on specific conditions for achieving the set goal, taking into account the parameters of the external environment. State regulation of regional development means a system of measures and actions aimed at ensuring the sustainable and balanced development of the country's territorial units in order to increase the efficiency of economic growth and the standard of living of the population[53]. State regulation should be aimed at strengthening the economic foundations of independent socio-economic development of all regions of the country by clearly separating their powers and responsibilities between the central and territorial state administration bodies. The development of regional independence and self-governance in regional development management processes requires strengthening and improving the role of central bodies. For example, the functions of central management bodies should consist of developing regional development strategies for productive forces and their phased implementation using new economic management methods, managing and forecasting regional development.

Effective use of this experience based on the study of advanced foreign experience in the comprehensive socio-economic development of regions, state regulation, improvement of territorial governance, and effective solution of problems in this area is of great importance. Based on the study of global experience, it can be said that the development and implementation of regional poli-

53 Nurekeshov, T., Mukasheva, A., Bekisheva, S., Khassenov, M. 2018. The problem of providing legal groundwork for the balance of traditional and alternative energy development in the context of kazakhstan's shift to green energy. *Journal of Advanced Research in Law and Economics*, 9(5), 1716–1728. https://doi.org/10.14505/jarle.v9.5(35).25

cy, ensuring the comprehensive socio-economic and balanced development of regions, is entrusted to one or two coordinating bodies. For example, in the Czech Republic – to the Ministry of Territorial Development, in Latvia – to the Ministry of Environmental Protection and Territorial Development. The list of coordinating bodies is shown in Table 1.

Table 1. Organizations responsible for the development and implementation of state territorial policy in foreign countries

No.	Country name	State body	Powers for integrated territorial development
1	Latvia	Ministry of Environment al Protection and Territorial Development	Implementation and evaluation of territorial policy at the state level, determination of methodological principles for regional development planning and control over this process, development of local government bodies in accordance with the country's sustainable development goals and control over their activities.
2	Czech Republic	Ministry of Regional Development	Development and implementation of territorial policy, determination of housing policy, development of the housing stock, rental of residential and non-residential premises, territorial planning, determination of building rules, implementation of investment policy, development of tourism.
3	Germany	Committee for territorial organization of the economy	Development of proposals and recommendations for improving the territorial organization of the economy, preparation of analytical reports on regional development, examination of regional projects, development of proposals and recommendations for the development of regions.
4	Bulgaria	Ministry of Territorial Development and Improvement	Comprehensive development of the country's regions, development of infrastructure networks, development and implementation of development and cooperation programs, etc.
5	Italy	Ministry of regional affairs	Development of proposals on the draft budget, provision of state assistance to underdeveloped regions, organization and conduct of the conference "State - Regions".
6	Tajikista n	Committee for Regional	Development and implementation of regional policy, development and implementation of regional

No.	Country name	State body	Powers for integrated territorial development
		Development	development strategies and programs, coordination of the activities of local authorities, etc.
7	Republic of Kazakhstan	Ministry of Territorial Development (until 2014)	Implementation of intersectoral and interregional coordination in the process of developing and implementing state policy in the field of regional development, coordination of entrepreneurship, including the activities of socio-entrepreneurial corporations.

Source: created by the authors.

It is considered effective to utilize the advanced experience of the Czech Republic in comprehensive socio-economic development and management of regions. In the Czech Republic, the Ministry of Regional Development is responsible for the development and management of this sector. It is part of the central government system of the Czech Republic and plays an important role within its mandate for managing financial resources. The Ministry was established in 1996 and is the central body for: developing and implementing regional policy; determining housing policy; developing the housing stock; leasing residential and non-residential premises; territorial planning; establishing construction regulations; conducting investment policy; developing tourism. The Ministry of Regional Development of the Czech Republic is responsible for the management of financial resources allocated to housing and regional policy. It coordinates the activities of other ministries and state bodies for the effective implementation of this policy. It carries out the work of the National Coordination Service, which manages financial assistance from structural and regional funds, ensures the reduction of territorial disparities in the Czech Republic, promotes the country's participation in EU territorial programs. It also provides informational and methodological support to local self-government bodies. In addition to the Ministry, there are other structures operating in the Czech Republic. These include the Association of Cities and Communities, the Association of Czech Territorial Development Agencies and the Center for International Municipal Consultations, which perform tasks determined by the priorities of the Ministry.

It is also important to study the best practices of Latvia in comprehensive and balanced regional development. The government of this state has repeatedly reformed territorial administration during the years of independence, which is shown in Figure 1.

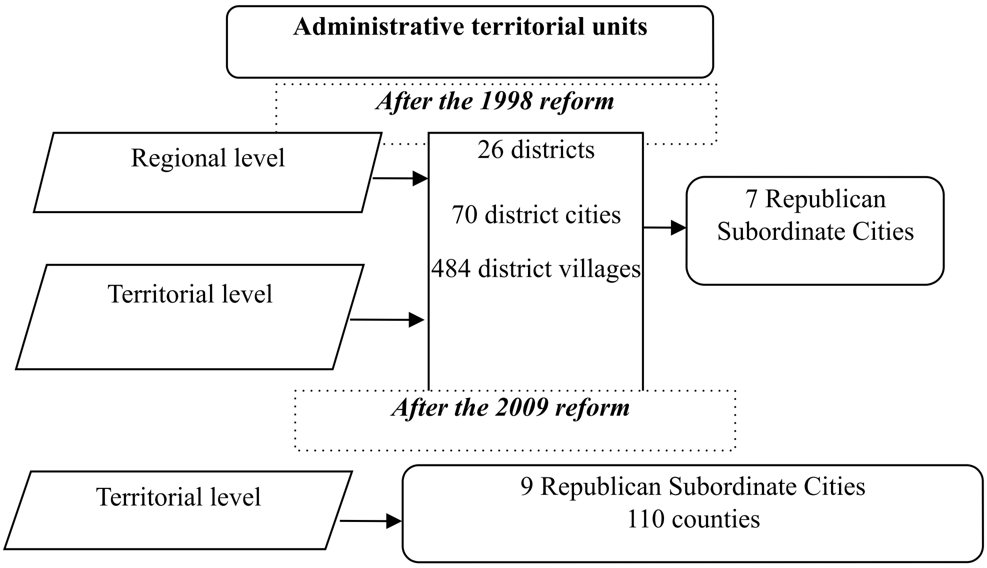


Figure 1. Classification of administrative-territorial units in the Republic of Latvia

Source: created by the authors.

The Ministry of Environmental Protection and Regional Development is responsible for the development and implementation of regional policy in Latvia, and its activities include: environmental protection; regional development; information and communication technologies. In the field of regional development, the Ministry implements and evaluates regional policy at the state level, defines methodological principles for regional development planning, and oversees this process. In addition, it develops local government bodies in accordance with the country's sustainable development goals and monitors their activities.

The State Regional Development Agency[54], which is under the management of this ministry and known as a regulatory body that promotes territorial development in the regions of Latvia, operates. The Agency manages state support programs and the activities of the structural funds of the European Union. State Agency for Territorial Development annually develops and expands its tasks and functions and began its activities with the implementation of entrepreneurship development programs in underdeveloped areas. It implements various structural funds and state-funded programs to support local municipal authorities and plays an important role in regional development. Another important area of activity of this agency is the preparation and publication of an analytical material entitled "Regional Development in Latvia" based on the analysis and assessment of regional development.

State Agency for Territorial Development cooperates with government agencies, local municipalities, and other organizations involved in regional development to promote and coordinate regional development and achieve common goals. The Latvian government is constantly reforming its administrative-territorial units. The following three directions were chosen in the Concept of Self-Government Reform adopted in 1993[55].

One of the key milestones in the legal dimension was the adoption of the Law on Self-Government Bodies, which provides a clear delineation of responsibilities and functions assigned to local authorities[56]. Under this framework, territorial self-government bodies are tasked with 18 specific functions, while cities of republican subordination are entrusted with 23 functions. These legal provisions aim to ensure clarity in governance roles, reduce duplication of responsibilities, and enhance accountability in service delivery. The law has established a structured approach to decentralization, empowering local bodies to address the unique needs of their respective communities.

---

54 State Regional Development Agency. 2007. Development of Regions in Latvia. https://www.varam.gov.lv/sites/varam/files/content/files/developments20of20regions_20071.pdf

55 Institute of Civil Society. 2015. How the reform of the administrative-territorial system and local self-government was carried out in Latvia. https://www.csi.org.ua/publications/yak-provely-reformu-administratyvno-t/

56 Frecon, J.-C., Leuba, P. 2011. Local and regional democracy in Latvia. https://rm.coe.int/168071a836

Between 1995 and 1998, significant financial reforms were undertaken to provide a sustainable economic foundation for self-government bodies. The enactment of the Law of the Republic of Latvia No. 41 "On Budget and Financial Management"[57] and the Law of the Republic of Latvia No. 118 "On Financial Adjustment of Municipalities"[58] marked critical steps in this direction. These laws facilitated the equitable distribution of financial resources, ensuring that economically weaker regions received adequate funding to meet their developmental needs. The reforms also sought to enhance fiscal autonomy for local governments, enabling them to generate and manage financial resources efficiently while adhering to national economic priorities. As a result of these reforms, Latvia transitioned to a single-tier system of territorial governance in 2009. The administrative division was streamlined to consist of nine cities of republican significance and 110 counties. This structural reorganization aimed to reduce administrative fragmentation, improve governance efficiency, and foster balanced regional development.

3.3. Innovative strategies for state regulation to reduce regional disparities and ensure sustainable development

Modern challenges in regional development require states not only to utilize traditional regulatory mechanisms but also to implement innovative strategies aimed at overcoming disparities in the socio-economic development of regions. Disparities between regions are often driven by historical, economic, social, and geographical factors, and are exacerbated by globalization processes, structural reforms, and uneven resource distribution. Therefore, the development of innovative regional management strategies is a key element in achieving sustainable development.

Innovative strategies for state regulation of regional development encompass a range of tools that combine modern technologies, intersectoral partnerships, scientific research, and integrated management approaches. These strategies aim to effectively utilize regional potential, minimize the negative externali-

57 Law of the Republic of Latvia No. 41 "On Budget and Financial Management". 2005. https://likumi.lv/ta/id/58057-likums-par-budzetu-un-finansu-vadibu

58 Law of the Republic of Latvia No. 118 "On Financial Adjustment of Municipalities". 2010. https://likumi.lv/ta/id/274742-pasvaldibu-finansu-izlidzinasanas-likums

ties of market mechanisms, and ensure the integration of regions into national and international economic systems.

One of the leading directions is the implementation of smart specialization as a foundation for developing regional strategies. Smart specialization involves identifying key sectors with the highest potential for innovative development and concentrating resources on their support. This approach enables regions to adapt to the challenges of the global market, reduce dependence on traditional sectors of the economy, and create new jobs in promising industries. For instance, in EU countries, the introduction of smart specialization strategies has significantly increased the effectiveness of utilizing structural funds, contributed to reducing regional disparities, and acted as a catalyst for innovation.

Another important component of innovative regulation is the use of digital technologies in the planning and management of regional development. The creation of digital platforms for monitoring and analysing regional disparities allows for informed decision-making based on current data. These platforms can be utilized to gather information on demographic trends, economic activity, infrastructure status, and environmental risks. Successful examples of implementing such systems can be observed in Scandinavian countries, where digital technologies have become the foundation for integrated solutions in regional management. The development of clusters plays a significant role in reducing regional disparities. The clustering of economic activities fosters synergy between businesses, research institutions, and government authorities, allowing for more effective resource utilization and enhancing regional competitiveness. For example, in Ukraine, a promising direction could be the development of agro-industrial clusters that take into account the natural advantages of regions and ensure sustainable resource use.

One of the key tasks of state regulation is to provide financial support to regions facing significant economic difficulties. Innovative approaches to this include the use of financial instruments such as regional bonds, venture capital funds, and public-private partnership mechanisms. These instruments enable the mobilization of private capital for the implementation of socially significant projects, thereby reducing the burden on the state budget.

Innovative regulation also entails strengthening the role of local communities in decision-making processes. Decentralization of governance is a crucial element in fostering local initiative, engaging citizens in addressing socio-economic issues, and enhancing the accountability of local government bodies. An important component of this process is increasing the transparency and accountability of government authorities through the implementation of e-governance.

In the context of ensuring sustainable development, particular attention should be paid to the environmental aspects of state regulation. The integration of environmental standards into regional policies promotes the rational use of natural resources, prevents ecosystem degradation, and ensures the ecological safety of the population. An effective tool in this regard is the adoption of "green" technologies and encouraging enterprises to reduce their carbon footprint by providing tax incentives and access to preferential financing.

To mitigate disparities between regions, it is also essential to develop mechanisms for adaptation to global changes, such as climate challenges, demographic shifts, and increasing migration flows[59]. Innovative approaches in this area involve creating flexible response strategies that take into account the specific characteristics of each region, as well as implementing cutting-edge forecasting methods based on big data analysis.

The application of modelling in state regulation allows for the assessment of potential scenarios regarding the impact of proposed strategies on reducing regional disparities and achieving sustainable development. In this context, important aspects include forecasting possible outcomes, integrating multifactorial relationships, and visually representing the mechanisms for implementing strategies. The results of the modelling are illustrated in Figure 2.

59 Smoilov, S.Z., Mukasheva, A.A., Syrlybayev, M.K. 2015. The legal mechanism of economic regulation of environmental protection and natural resources management: The concept notion, the legal support system. *Indian Journal of Science and Technology*, 8(Specialissue10). https://doi.org/10.17485/ijst/2015/v8iS10/84870

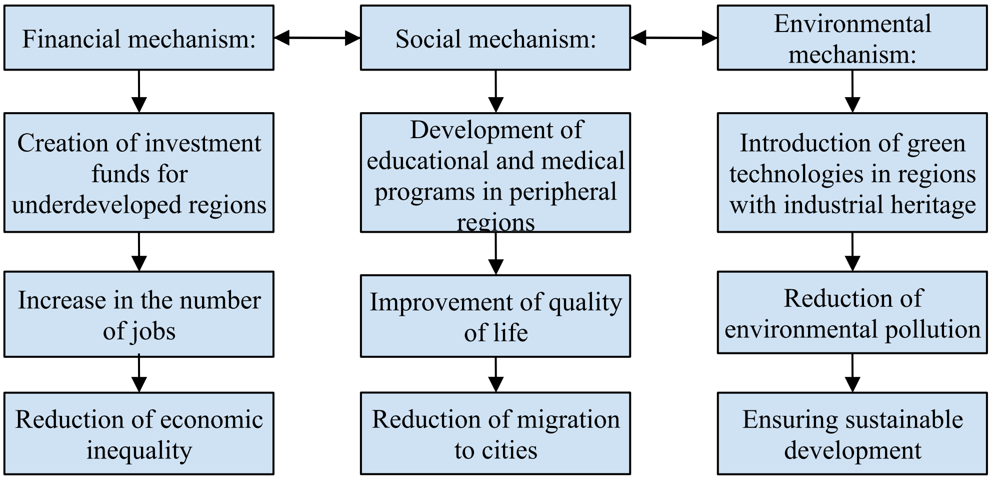


Figure 2. Model for forecasting the impact of innovation strategies on regional development

Source: created by the authors.

Regarding the financial mechanism, the development of national state funding programs for regions with a high level of economic vulnerability is crucial. For instance, the introduction of grants for small and medium-sized enterprises with preferential conditions specifically designed for regions experiencing significant population outflow can help stimulate the local economy. Additionally, optimizing the interregional income redistribution system is of paramount importance, particularly by increasing the share of tax revenues retained at the local level to finance infrastructure projects. This approach not only enhances the financial autonomy of local authorities but also ensures that resources are directed toward addressing the unique needs of economically distressed areas.

Social Mechanism: Investments in the development of modern medical facilities in rural areas are essential for improving health outcomes. This includes creating training programs for healthcare professionals and ensuring their employment in these regions upon graduation. Such initiatives can reduce the shortage of medical personnel and enhance the quality of healthcare services available to local populations. Furthermore, it is vital to launch pilot educational programs that incorporate innovative teaching methodologies aimed at developing the human resource potential of the regions. These programs should focus on equipping students with skills that align with the specific economic and social contexts of their communities.

The establishment of green industrial parks that integrate environmentally friendly technologies is critical for ensuring sustainable economic growth in the regions. These parks can serve as centres for innovation and sustainable development, promoting the use of clean technologies that minimize environmental impact while fostering economic advancement. Additionally, the implementation of state programs for waste management and the reclamation of historically polluted areas is necessary to address environmental degradation. The use of innovative energy efficiency methods in these programs will not only improve ecological conditions but also contribute to the overall sustainability of regional development initiatives.

Through these coordinated efforts across financial, social, and environmental mechanisms, a comprehensive approach to regional development can be achieved, addressing the multifaceted challenges faced by vulnerable areas. In conclusion, innovative strategies for state regulation are based on the integration of scientific approaches, modern technologies, and intersectoral cooperation. They aim to reduce regional disparities, stimulate economic growth, and ensure sustainable development, thereby creating a foundation for integrated and balanced regional progress.

4. Discussion

The conducted research aligns with several prominent works in terms of its focus on regional development, the role of institutional and human factors, and the integration of economic and governance models to ensure stability and sustainability. This alignment underscores the importance of understanding the multifaceted nature of regional development and highlights how various elements interact to create a conducive environment for growth. In particular, the emphasis in the study on the human factor as a critical element for regional stability aligns closely with the findings of J. Martinez-Vazquez and F. Vaillancourt[60].

60 Martinez-Vazquez, J., Vaillancourt, F. 2008. *Public policy for regional development*. London: Routledge. https://www.routledge.com/Public-Policy-for-Regional-Development/Martinez-Vazquez-Vaillancourt/p/book/9781138805279?srsltid=AfmBOoqGNcYQzNYLkJnRdMPBrpJBwkk9sB8dMtp9EUqUaYvO5Qy7r8Ws

Their work underscored the significance of fostering human capital as a central mechanism for ensuring regional equilibrium and economic resilience. They argued that investing in human capital not only enhances individual capabilities but also contributes to collective regional strength, thereby promoting sustainable development.

R. Kaplan and D. Norton[61] highlight the transformation of balanced scorecards into strategic management tools, emphasizing the integration of financial and non-financial indicators to enhance organizational efficiency. Similarly, the study underscores the importance of balancing centralized policies with localized implementation, leveraging both financial instruments (such as the European Regional Development Fund) and intangible factors like institutional capacity and governance quality. Both works emphasize the need for coherent strategies to align resources and objectives effectively, although conducted research focuses more on the governance of regions rather than corporate entities. W. Cochrane and J. Poot[62] discuss export-led regional growth models influenced by Keynesian economics, highlighting the interplay between income generation, resource utilization, and institutional conditions. Conducted research complements this perspective by analysing how state regulation can mitigate regional disparities and optimize resource distribution. While their work explores macroeconomic dependencies and the Verdoorn effect, the study delves into the mechanisms by which legislative frameworks and funding instruments can support regional economic cohesion and sustainability, addressing disparities between urban and rural areas.

R. Harris[63] explored the evolution of regional growth models, from neoclassical to modern theories emphasizing knowledge spill overs and firm heterogeneity. Similarly, the study reflects an interdisciplinary approach, analysing governance structures alongside economic growth strategies. While R. Harris focu-

---

61 Kaplan, R.S., Norton, D.P. 2001. Transforming the balanced scorecard from performance measurement to strategic management: Part 1. *Accounting Horizons*, 15(1), 87-104. https://www.scirp.org/reference/referencespapers?referenceid=2278299

62 Cochrane, W., Poot, J. 2021. Demand-driven theories and models of regional growth. In: M.M. Fischer, P. Nijkamp (Eds.), *Handbook of Regional Science* (pp. 661-678). Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-662-60723-7_15

63 Harris, R. 2011. Models of regional growth: Past, present and future. *Journal of Economic Surveys*, 25(5), 913-951. https://doi.org/10.1111/j.1467-6419.2010.00630.x

ses on agglomeration economies and micro-level factors like entrepreneurship, work emphasizes the systemic and structural analysis of institutional hierarchies and their role in regional development. Both approaches underscore the importance of tailored policies to address unique regional challenges. P. Vellala et al.[64] emphasize the role of macroeconomic policy in achieving balanced regional development through efficient resource allocation and human potential enhancement. This perspective resonates with analysis of legislative and policy measures aimed at reducing regional disparities and promoting sustainable growth. While P. Vellala et al. focus on the theoretical underpinnings of macroeconomic policies, the conducted study integrates these principles with practical governance tools, such as administrative-territorial reforms and fiscal adjustment laws.

The analysis by O. Balan et al.[65] emphasized the importance of balanced resource allocation and economic specialization as drivers of regional development. This aligns with the research focus on legislative frameworks aimed at addressing regional disparities through targeted investments and specialized economic policies. While O. Balan et al. emphasize infrastructure investments and the establishment of economic zones to promote equity and reduce inequalities, the conducted study extends this perspective by analysing the interplay between these measures and broader legislative reforms at the European level.

The work of A. Calai[66] discussed Azerbaijan's socio-economic reforms and the formation of an innovation-oriented economy, emphasizing integration into the global economic system and enhancing regional competitiveness. The conducted research parallels these themes by exploring the integration of regional economies into broader national and European frameworks, facilitated by regulatory instruments and funding mechanisms. Both studies underscore the critical

64 Vellala, P., Madala, M., Chhattopadhyay, U. 2014. A theoretical model for inclusive economic growth in Indian context. *International Journal of Humanities and Social Science*, 4(13), 229-235. http://www.ijhssnet.com/journals/Vol_4_No_13_November_2014/27.pdf

65 Balan, O.S., Voitenko, M.V., Pulcha, D.O. 2024. Public regulation of regional development. *Economics: Time Realities*, 71(1), 14-21. https://doi.org/10.5281/zenodo.10914542

66 Calai, A.T. 2021. The concept of sustainable development and the problem of socio-economic development of regions. In: S. Yagubov, S. Aliyev, M. Mikic (Eds.), *70th International Scientific Conference on Economic and Social Development* (pp. 778-787). Baku: Azerbaijan State University of Economics. https://www.esd-conference.com/upload/book_of_proceedings/Book_of_Proceedings_esdBaku2021_Online.pdf

role of infrastructure development and local market strengthening, but the research also highlights the importance of policy coherence across different administrative levels to achieve sustained growth. D. MacKinnon et al.[67] investigate the challenges of neglected regions in the context of social discontent, advocating for neo-endogenous development approaches that prioritize income generation, social infrastructure, and innovation. The conducted research similarly addresses the issue of marginalized territories but frames it within the context of European cohesion policies and the development of underperforming regions. While D. MacKinnon et al. focus on social innovation and economic fundamentals, the research complements these insights by examining how state-regulated frameworks can operationalize such strategies at regional and local levels. A. Diemer et al.[68] introduced the concept of "regional development traps", analysing regions in Europe facing structural challenges to economic recovery and improved well-being. The conducted study resonates with this analysis, particularly in identifying regions vulnerable to economic stagnation and inequality. In contrast to A. Diemer et al., who propose quantitative indicators, the research incorporates qualitative dimensions such as governance and administrative reform as critical tools for overcoming structural limitations.

The findings of the conducted research underscore the significance of institutional frameworks and strategic governance in mitigating regional disparities and fostering sustainable development. The emphasis on aligning centralized policies with local implementation resonates with the conclusions of R. Kaplan and D. Norton[69], who highlighted the integration of diverse performance indicators for strategic effectiveness. By adapting these principles to regional governance, the study demonstrated how a balanced approach that includes both tangible resources and intangible factors, such as institutional capacity and human capital,

---

67 MacKinnon, D., Kempton, L., O'Brien, P., Ormerod, E., Pike, A., Tomaney, J. 2022. Reframing urban and regional "development" for "left behind" places. *Cambridge Journal of Regions, Economy and Society*, 15(1), 39-56. https://doi.org/10.1093/cjres/rsab034

68 Diemer, A., Iammarino, S., Rodríguez-Pose, A., Storper, M. 2022. The regional development trap in Europe. *Economic Geography*, 98(5), 487-509. https://doi.org/10.1080/00130095.2022.2080655

69 Kaplan, R.S., Norton, D.P. 2001. Transforming the balanced scorecard from performance measurement to strategic management: Part 1. *Accounting Horizons*, 15(1), 87-104. https://www.scirp.org/reference/referencespapers?referenceid=2278299

can yield results. This alignment suggests that incorporating multi-level governance strategies is critical for addressing the unique challenges faced by urban and rural regions.

Moreover, the research complements the macroeconomic perspectives of W. Cochrane and J. Poot[70], particularly regarding the role of resource utilization and institutional conditions in regional growth. However, while their analysis focuses on export-driven dynamics and macroeconomic dependencies, this study extends the discussion to include the role of funding instruments, legislative frameworks, and local governance quality in shaping development outcomes. The divergence in focus highlights the broader applicability of the study's findings in crafting targeted interventions for regions facing socio-economic inequalities and structural deficiencies. In summary, the conducted research complements the referenced works by bridging theoretical frameworks and practical applications, particularly through its emphasis on European legislative and institutional contexts. It expands upon existing models by integrating governance and economic strategies, highlighting the interplay between policy instruments, institutional capacities, and human factors in fostering regional stability and development.

5. Conclusions

The conclusions emphasized the necessity of active state regulation to achieve sustainable and balanced regional development. Regional policy must be multidimensional and integrated, encompassing economic, social, and administrative aspects. The successful implementation of such policies depends on the ability of governments to adapt strategies to the specific characteristics of each region, including its socio-economic structure, cultural heritage, and environmental conditions. To ensure sustainable development, states must consider existing regional disparities, applying various approaches such as convergence policy and growth pole theory, which have demonstrated effectiveness under different circumstances. State policy should be flexible and adopt a differentiated approach for each region, particularly through financial support, investments in infrastructure, and the creation of favourable conditions for development in less developed

70 Cochrane, W., Poot, J. 2021. Demand-driven theories and models of regional growth. In: M.M. Fischer, P. Nijkamp (Eds.), *Handbook of Regional Science* (pp. 661-678). Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-662-60723-7_15

areas.

The study of foreign countries' experiences shows that effective state regulation of regional development is ensured through the establishment of specialized bodies responsible for the development and implementation of territorial policy. For example, in the Czech Republic, this is the Ministry of Regional Development, which manages financial resources comprehensively and coordinates the activities of other state bodies to ensure balanced regional development. This model has helped reduce territorial disparities and promote the integration of the country into European development programs. In Latvia, the implementation of regional policy is carried out through the Ministry of Environmental Protection and Regional Development, which is also responsible for creating methodological principles for regional development planning and monitoring their implementation. Systematic reforms of administrative-territorial units that have taken place in the country have led to the optimization of management structures, a reduction in administrative burdens, and an increase in the efficiency of regional governance, positively affecting regional development. The joint use of classical and neoclassical development theories allows for effective results in managing regional development and contributes to an innovative approach to the industrial modernization of remote areas and the improvement of institutional foundations for regional development.

The modelling and forecasting model simplify the decision-making process for management, as well as assesses the long-term consequences of implementing the proposed strategies. This enhances the justification of governmental decisions and contributes to the gradual achievement of sustainable development in the regional dimension. The visualization demonstrates the impact of each mechanism on key factors: economic balance, social justice, and environmental sustainability. The data illustrate that the financial mechanism has the greatest influence on economic balance, the social mechanism reinforces social justice, and the environmental mechanism ensures environmental sustainability.

Expanding the geographic scope of the analysis, including regions outside Eurasia, could also provide a more comprehensive understanding of global patterns in regional development. For example, analysing the approaches adopted by countries in North America, Latin America, and Africa could offer valuable insights into how different socio-political and economic contexts shape regional development strategies. Additionally, further comparative studies on the effectiveness of regional development models in both developed and developing countries could reveal how diverse governance structures influence outcomes in terms of reducing inequalities, fostering growth, and promoting social cohesion. Furthermore, the incorporation of a wider range of data sources, including both quantitative and qualitative data, could enhance the precision of forecasting models and improve the ability to tailor strategies to specific regional needs. Future research could also focus on the intersection of regional development and emerging global challenges, such as climate change, digitalization, and migration, to provide a more holistic framework for sustainable regional development policies.

PA Persona e Amministrazione
Ricerche Giuridiche sull'Amministrazione e l'Economia

Sovetbek Akmatov
Senior Lecturer at the Department of International Relations, Osh State University
asovetbek4@gmail.com
Kumarbek Samiev
Lecturer, Master at the Department of International Relations, Osh State University
k.samiev@outlook.com
Abdisatar Ergeshov
Associate Professor, PhD at the Department of International Relations, Osh State University
a-ergeshov@hotmail.com
Tazagul Abdyrakhmanova
Lecturer at the Department of International Relations, Osh State University
t_abdyrakhmanova@outlook.com
Ajimamat Boronbaev
Associate Professor, PhD at the Faculty of Arts, Osh State University
aboronbaev@hotmail.com

The role of small enterprises in promoting economic growth and social welfare

Abstract

The objective of this study was to identify the ways in which small businesses influence the socio-economic development of a country, and to develop recommendations for promoting such development using the Republic of Kyrgyzstan as a case study. The recommendations and the conducted analysis were based on the study of statistical data reflecting the functioning of Kyrgyzstan's economy, the state of the labour market, and the situation of small businesses in the country. The recommendations were also informed by the experiences of India, Malawi, and Zimbabwe. The research found that Kyrgyz small businesses contribute to the country's economic development through their involvement in sectors such as trade, agriculture, hospitality, and contracting services, collectively accounting for approximately 9% of national output. Furthermore, small enterprises generate employment (approximately 2% of total employment), thereby increasing job availability and consequently reducing both poverty (29.8%) and extreme poverty (5.1%) across the country. The study identified two major challenges facing small businesses in Kyrgyzstan: limited access to finance and a low level of financial literacy among the population. These challenges significantly impact the capacity of small enterprises to contribute to the country's socio-economic development. As a result, addressing these issues has emerged as a priority for the government in its efforts to enhance the efficiency of national economic operations and improve the social welfare of the population. In practical terms, the implementation of programmes to promote social entrepreneurship, with components aimed at improving the financial literacy of small business personnel, is essential. It is also advisable to introduce measures for establishing collective financing clusters and systems of mutual guarantees between large and small enterprises. These findings are of both academic and practical value, as the measures proposed serve as direct policy recommendations for the Government of Kyrgyzstan.

KEYWORDS: national economy, employment, social resilience, financing, financial literacy

1. Introduction

Following the declaration of independence by the Republic of Kyrgyzstan, the country's socio-economic situation significantly deteriorated. Despite government efforts aimed at national development, the situation continues to necessitate intervention to simultaneously address social and economic challenges. The issues of continued economic development and the improvement of social welfare can be addressed through the development and enhancement of the small business sector in Kyrgyzstan. The relevance of this study lies in the exploration of strategies for economic growth and the improvement of the population's well-being in Kyrgyzstan, based on the successful experiences of other nations facing similar challenges.

The Republic of Kyrgyzstan, located in Central Asia, had a population of 7.1 million as of 2024[1]. All post-Soviet countries began with similar initial conditions after the dissolution of the Soviet Union in 1991; however, their trajectories diverged significantly, resulting in varying levels of economic development and standards of living[2]. Among former Soviet republics in Central Asia, Kyrgyzstan was the most proactive in reforming its national economy. Since gaining indepen-

1 NATIONAL STATISTICAL COMMITTEE OF THE KYRGYZ REPUBLIC, *Population*, 2025b.

dence, the Kyrgyz government has pursued active policies aimed at attracting foreign direct investment and promoting the development of agriculture, industry, and the mining sector to achieve sustainable economic growth[3]. In 2024, Kyrgyzstan's gross domestic product (GDP) reached USD 15.77 billion, compared to USD 1.24 billion in 1999[4]. Inflation over the period from 1999 to 2024 fell from 35.9% to 5.1%, respectively[5]. However, despite these governmental efforts and the corresponding economic activity, Kyrgyzstan has not emerged as a leader in economic development within Central Asia or the post-Soviet space. Moreover, the social welfare of its population has declined[6]. In 2023, 29.8% of Kyrgyz citizens were living below the poverty line, and 5.0% were experiencing extreme poverty, meaning they were unable to afford an adequate level of food consumption. By contrast, in 2019, only 0.5% of the population fell into the category of extreme poverty[7].

The impact of small enterprises on the economic and social development of nations has attracted considerable international scholarly attention. In an analysis of the influence of small and medium-sized enterprises (SMEs) on the economies of 28 countries – most of them EU member states –Batrancea et al.[8] concluded that SMEs constitute the backbone of the economy regardless of a country's development level. Empirical evidence confirms that stimulating SME activity and improving working conditions through government policy can lead to increased economic growth. For instance, researchers Ozturk et al.[9], examining the role of small businesses in China between 1998 and 2020, found that SMEs

2 T. HIROYUKI, E. ABDULLAEV, *Premature deindustrialization in post-Soviet economies*, MPRA Paper, 2022, No. 114413.

3 E. LEE, J.S. MAH, *Industrial policy and economic development of Kyrgyzstan*, Asian Social Science, 2020, 41–55.

4 STATISTA, *GDP in current prices in Kyrgyzstan* (1992–2030), 2025a.

5 STATISTA, *Average inflation rate in Kyrgyzstan (1993–2030),* 2025b.

6 STATISTA, *Growth in real GDP in Central and Eastern Europe and Central Asia (2023–2026*), 2024.

7 NATIONAL STATISTICAL COMMITTEE OF THE KYRGYZ REPUBLIC, *Standard of Living of the Population… 2019–2023: Annual Publication*, 2024a.

8 L.M. BATRANCEA, M.A. BALCI, L. CHERMEZAN, O. AKGULLER, E.S. MASCA, L. GABAN, *Sources of SMEs financing and their impact on economic growth across the European Union*, Sustainability, 2022, 15318.

9 I. OZTURK, O. ALQASSIMI, S. ULLAH, *Digitalization and SMEs development in the context of sustainable development: A China perspective*, Heliyon, 2024, e27936.

facilitated the sustainable development of the Chinese economy. Analysing China's business environment and economic progress, Liu et al.[10] observed that, following the SARS-CoV-2 pandemic, it was SMEs in the hospitality sector that contributed to an increase in national GDP. This was achieved through a revised credit policy and improvements in tax legislation.

In their study on Turkey, Erdin and Ozkaya[11] established that SMEs not only contribute to short-term economic growth but also ensure sustainable socio-economic development in the sectors where they operate. In the context of Saudi Arabia, Naushad[12] concluded that entrepreneurial leadership plays a vital role in SME productivity, with leadership development among entrepreneurs being a key factor. From a systematic review of the literature, Endris and Kassegn[13] found that in Ethiopia, the active development of SMEs helped create jobs, reduce poverty, and improve living standards. Accordingly, SMEs are identified as a critical sector for sustainable national development. When examining the impact of SMEs on poverty levels in Indonesia, Nursini[14] determined that micro- and small enterprises had a greater influence in alleviating poverty compared to small and medium enterprises. The reason lies in the capacity of micro and small businesses to reduce both the number of poor individuals and the poverty gap. Similar findings were reported by Manzoor et al.[15] in their analysis of Pakistan. Notably, the most significant improvements in social welfare were observed in rural areas of developing countries.

There remains a significant gap in the development of targeted recommendations to improve SME operations and maximise their economic contributions in Kyrgyzstan. Considering the successful experience of other countries, Kyrgyz-

10 Y. LIU, A. DILANCHIEV, K. XU, A.M. HAJIYEVA, *Financing SMEs and business development*, Economic Analysis and Policy, 2022, 554–567.

11 C. ERDIN, G. OZKAYA, *Contribution of SMEs to economic development and quality of life in Turkey*, Heliyon, 2020, e03215.

12 M. NAUSHAD, *Investigating determinants of entrepreneurial leadership among SMEs*, Journal of Asian Finance, Economics and Business, 2021, 225–237.

13 E. ENDRIS, A. KASSEGNE, *The role of MSMEs to the sustainable development of sub-Saharan Africa and its challenges*, Journal of Innovation and Entrepreneurship, 2022, 20.

14 N. NURSINI, *Micro, small, and medium enterprises and poverty reduction: Evidence from Indonesia*, Development Studies Research, 2020, 153–166.

15 F. MANZOOR, L. WEI, N. SAHITO, *Role of SMEs in rural development*, PLoS ONE, 2021, e0247598.

stan has an opportunity to improve the current situation and raise the population's standard of living, which in turn will directly affect the country's overall economic development.

The aim of the present study was to analyse the impact of SMEs on the economic and social development of Kyrgyzstan and to develop measures to promote national development through the functioning of small businesses. The research pursued the following key objectives: to identify the main ways in which SMEs influence socio-economic development; to analyse principal statistical indicators characterising Kyrgyzstan's economic and social development; to identify the challenges faced by small businesses in the country that hinder social welfare improvements and economic progress; and to formulate recommendations for enhancing the operations of Kyrgyz small enterprises and their role in stimulating socio-economic growth.

2. Material and Methods

The methodology of this study was based on a combination of qualitative and quantitative approaches to maximise the synergistic effect of their integration. The qualitative component involved an analysis of the topic based on previous research – such as that of Abisuga-Oyekunle et al.[16]; Amoah et al.[17]; Patra and Muchie[18] – and the experiences of other countries (India, Malawi, Zimbabwe). The quantitative component involved the examination of key statistical indicators. To address the research objectives and achieve the stated aim, the study was conducted in three stages.

At the first stage, statistical data were analysed to characterise the functioning of small businesses in Kyrgyzstan. This included: the number of small enterprises and the share of their gross value added in the country's GDP

16 O.A. ABISUGA-OYEKUNLE, S.K. PATRA, M. MUCHIE, *SMEs in sustainable development: Their role in poverty reduction and employment generation in sub-Saharan Africa*, African Journal of Science, Technology, Innovation and Development, 2020, 405–419.

17 J. AMOAH, J. BELAS, R. DZIWORNU, K.A. KHAN, *Enhancing SMEs contribution to economic development: A perspective from an emerging economy*, Journal of International Studies, 2022, 63–76.

18 S.K. PATRA, M. MUCHIE, *Science and technological capability building in Global South*, Innovation, Regional Integration, and Development in Africa, 2019, 303–338.

over the period 2001-2024[19,20]; the sectoral distribution of small business contributions to GDP; as well as the percentage of exports and imports accounted for by small enterprises in the overall national trade during 2001-2024[21]. These data were essential for understanding the real impact of small businesses in the country, the dynamics of this impact over time, and the potential of small enterprises to foster economic development. Microsoft Excel was used to create graphical representations of the number of small businesses and their share of gross value added in GDP over time.

The second stage involved the analysis of key indicators of social development in Kyrgyzstan, including: the size of the resident population from 2011 to 2024[22]; poverty levels from 2021 to 2023; and unemployment rates from 2019 to 2023[23]. These indicators were necessary for assessing the potential influence of small enterprises on the population's social welfare. For a more detailed analysis, additional indicators were considered, such as the number of people employed in small businesses and the proportion of these employees within total national employment for the period 2002-2024. The analysis of these statistical data enabled an understanding of the contribution of small businesses to the national labour market and their potential to improve employment conditions.

Both single-year and time-series indicators were used in the analysis. To assess trends over time, the growth rate formula was applied (formula 1):

$$TPR = \frac{Ct}{Cb} \times 100\,\% - 100\,\%,$$

(1)

where C_t – indicator values for the current period, C_b – indicator values for the base period, TPR – the rate of indicator growth.

---

19 NATIONAL STATISTICAL COMMITTEE OF THE KYRGYZ REPUBLIC, *Key indicators of small and medium-sized businesses by territory in January–September*, 2024b.

20 NATIONAL STATISTICAL COMMITTEE OF THE KYRGYZ REPUBLIC, *Number, number of employees and gross added value of SMEs*, 2025c.

21 NATIONAL STATISTICAL COMMITTEE OF THE KYRGYZ REPUBLIC, *Main economic indicators of SMEs (percentage of total volume)*, 2025d.

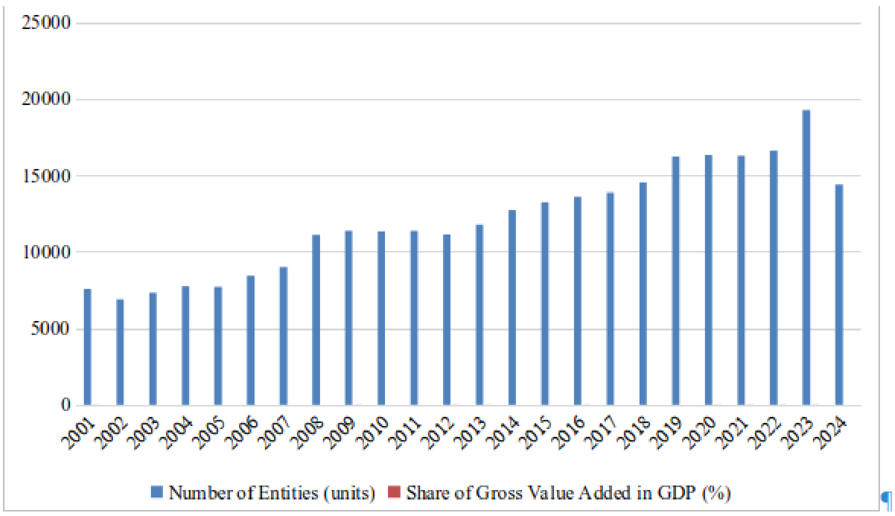
22 NATIONAL STATISTICAL COMMITTEE OF THE KYRGYZ REPUBLIC, *Number of permanent population by sex and age groups*, 2022.

23 NATIONAL STATISTICAL COMMITTEE OF THE KYRGYZ REPUBLIC, *Unemployment rate (in percent)*, 2025a.

Following the assessment of the potential impact of small businesses on the socio-economic development of Kyrgyzstan, the third stage of the analysis involved an in-depth examination of the key issues hindering entrepreneurial activity in the country. Based on the identified challenges, a set of measures was proposed to improve the prevailing situation in Kyrgyzstan. The study also analysed the principal strategies considered appropriate for small Kyrgyz enterprises to operate effectively from the perspective of governmental economic development and improvements in population welfare. Due to the unavailability of official statistical data for 2024, the research utilised partial data from 2023 to ensure analytical reliability and continuity.

3. Results

In Kyrgyzstan, the classification of enterprises by size is based on the number of employees and the enterprise's operational turnover. According to the Law of the Kyrgyz Republic No. 73 "On State Support for Small Business"[24], a small enterprise is defined as one employing between 25 and 75 individuals (depending on the sector) with annual gross revenue not exceeding 8 million soms[25]. Figure 1 depicts the dynamics of the number of small enterprises in Kyrgyzstan from 2001 to 2024, alongside the share of gross value added (GVA) in GDP.



24 KYRGYZ REPUBLIC, Law No. 73 "On State Support for Small Business", 2007.
25 KYRGYZ REPUBLIC, *Tax Code of the Kyrgyz Republic*, 2022.

Figure 1. Dynamics of small business entities and their contribution to GDP in Kyrgyzstan, 2001-2024

Note: the data on the number of entities for the period from 2001 to 2023 are presented for the full calendar year, while the data for 2024 cover the period from January to September.

Source: compiled by the authors based on National Statistical Committee of the Kyrgyz Republic (2024b, 2025c).

As shown in Figure 1, over the analysed period, the number of small business entities in the country has increased by 1.9 times. Notable upward trends in the number of operating small businesses were observed during 2002-2004 (growth rate of 12.12%), 2005-2009 (47.92%), and 2012-2020 (46.51%), followed by a further increase in 2021-2023 (18.41%). The highest number of small enterprises in Kyrgyzstan was recorded in 2023, reaching 19,245 units.

Figure 1 further illustrates that the gross value added by small enterprises in Kyrgyzstan increased more than 19.5-fold over the 2001-2023 period, from 5,982.8 million soms in 2001 to 116,944.8 million soms in 2023.

In many countries, the promotion of SMEs has proven to be an effective economic development strategy, subsequently becoming an essential mechanism for contributing to national GDP[26]. For example, in 2024, the contribution of SMEs to GDP in India was 30.0%, in Zimbabwe 60% (2023), and in Malawi 27%[27][28]. In Kyrgyzstan, this figure stood at 9.5% in 2023, marking a 1.4% increase since 2001.

Between January and September 2024, small enterprises in Kyrgyzstan were predominantly active in contract-based services. The volume of industrial output produced by small businesses increased by 17.1% compared to 2023, reaching 38,936.0 million soms in 2024. However, the share of small businesses in total industrial output decreased from 11.8% in 2023 to 11.6% in 2024, indicating a 0.2% reduction despite absolute growth. Compared to 2001, however, this represents a 1.6% increase.

26 M. SPANOV, K. NURGALIEVA, A. USSENOVA, *Theoretical and methodological bases of formation of petrochemical clusters*, Espacios, 2019, 40(14).

27 D. BATIZANI, N.R. NAYEJA, *Access to entrepreneurial finance in Malawi: Challenges and opportunities for start-ups*, Inverge Journal of Social Sciences, 2024, 45–62.

28 INTERNATIONAL TRADE CENTRE, *Promoting SME competitiveness in Zimbabwe*, ITC, 2023.

The growth rate of wholesale and retail trade volumes, including the repair of motor vehicles and motorcycles, was 22.1% in 2024 relative to 2023, reaching 340,635.0 million soms. The share of small enterprises in this sector also increased by 0.2%, totalling 32.8% in 2024. Compared to 2001, however, this share declined by 2.4%.

The volume of services rendered by small enterprises in the hotel and restaurant sector grew to 5,236.7 million soms in January-September 2024, compared to 4,166.7 million soms in 2023. Small businesses accounted for 18.2% of the total services in this category in 2024, up from 17.6% in 2023 – an increase of 0.6%, representing the largest gain in the sectoral share among all categories. Between 2001 and the first three quarters of 2024, this share grew by 13.9%.

The agricultural output of small Kyrgyz enterprises increased by 60.7% in 2024 compared to 2023, when it amounted to 3,258.3 million soms. Despite significant growth, their share of total agricultural production rose only modestly, from 1.2% in 2023 to 1.7% in 2024 – a 0.5% increase. Compared to 2001, this represents a 0.9% rise. These findings suggest that in Kyrgyzstan, small businesses primarily impact the trade, hospitality, and construction sectors, with a moderate influence on agriculture and industry. This statistical evidence supports the conclusion that SMEs play a vital role in the Kyrgyz economy and have the potential to significantly enhance the country's socio-economic standards.

Economic development remains both a challenge and a priority for governments in developing and developed nations alike. Economic development entails the accumulation of national wealth, which subsequently affects the economic, political, and social welfare of the population[29]. Besides the government, SMEs are also deeply invested in this process, as such enterprises have become the foundation of development in many countries through poverty reduction, GDP growth, job creation, the supply of goods and services, innovation promotion, and corporate social responsibility.

---

29 K. LAVRUKHINA, V. TYTOK, A. BILOSHCYTSKYI, R. TORMOSOV, O. KALININ, O. MOSTOVENKO, *Research on the prospects and risks of digital economic transformation: Positive impact, key threats, and the role of clusters in the transformation of Ukraine's national economy*, SIST 2025 – 2025 IEEE 5th International Conference on Smart Information Systems and Technologies, Conference Proceedings, 2025.

Small enterprises are drivers of economic development through their capacity to generate employment and raise living standards[30]. Increased employment leads to greater consumer spending, positively impacting national revenue. In such circumstances, imports tend to decline while exports grow due to rising domestic production levels[31]. The share of exports by small enterprises in Kyrgyzstan rose from 19.2% in 2001 to 30.7% in 2023 – a 59.9% growth. Meanwhile, their share in national imports increased from 42.0% in 2001 to 47.1% in 2023 – a growth rate of 12.1% over the same period.

The permanent population of Kyrgyzstan has been increasing annually. From 2011 to 2024, the population grew by 28.9%, reaching 3.6 million in 2024. However, the share of the working-age population declined from 63.6% in 2011 to 60.4% in 2024. This demographic trend presents a dual challenge: on the one hand, it creates pressure to expand labour production, while on the other, it fosters the risk of a growing unemployed population, adversely affecting overall living standards.

One of the central issues in Kyrgyzstan's development is the low standard of living. In 2023, the poverty rate was 29.8%, with 5.0% of the population living below the poverty line. In 2021, these figures stood at 20.1% and 0.5%, respectively (National Statistical Committee of the Kyrgyz Republic, 2024a). Job creation is a fundamental prerequisite for the country's economic development. Small enterprises have greater flexibility in generating employment opportunities than larger firms, as they can be established across diverse sectors of the national economy. SMEs, due to their labour-intensive nature, tend to create more jobs while requiring significantly lower capital investment compared to large corporations. This trend is particularly important for developing countries and those with high unemployment rates. As a result of SME activity, unemployment and poverty levels tend to decrease[32]. Between 2019 and 2023, the unemployment rate in Kyrgyzstan fell from 5.5% to 4.1%.

---

30 B.R. REXHEPI, *Impact of remittances on Kosovo's economic development and poverty reduction*, Quality – Access to Success, 2023, 24(195), 347–359.

31 G. MYSLIMI, K. KACANI, *Impact of SMEs in economic growth in Albania*, European Journal of Sustainable Development, 2016, 151–158.

32 B.A. MAOW, *The impact of SMEs on economic growth and job creation in Somalia*, Journal of Economic Policy Researches, 2021, 45–56.

The dynamics and structure of employment in small enterprises in Kyrgyzstan from 2002 to 2024 are presented in Table 1.

Table 1. Dynamics and structure of employment in small businesses in Kyrgyzstan, 2002-2024

Indicator	**Year**											
	2002	**2004**	**2006**	**2008**	**2010**	**2012**	**2014**	**2016**	**2018**	**2020**	**2022**	**2024**
Employment, thousand persons	41.7	41.7	44.8	52.9	50.2	50.0	52.0	52.2	56.6	69.0	58.9	60.0
Share of employed in total economically active population, %	2.3	2.2	2.1	2.4	2.2	2.2	2.3	2.2	2.2	2.8	2.3	-
Growth rate compared to the previous period, %	-	-	+7.4	+18.1	-5.1	-0.4	+4.0	+0.9	+8.4	+21.9	-14.6	+1.8

Note: data for 2001-2023 reflect full calendar years; 2024 data cover January-September.

Source: compiled by the authors.

As shown in Table 1, small enterprises accounted for 1.1 thousand more employed persons in the period from January to September 2024 than in the entire calendar year of 2022. For comparison, the growth rate of this indicator over the period from January 2002 to September 2024 was 43.88%. As illustrated in Table 1, despite this positive trend, the share of employment in small enterprises within the total employed population in the economy increased in 2023 and returned to the level observed in 2002, considering that in 2020 the same indicator was 0.5% higher.

Compared to small businesses, the share of the working population employed in medium-sized enterprises decreased by 2.2% during the period from 2001 to 2023. As of 2023, the share of employed persons in medium-sized enterprises was 1.5%, compared to 2.3% in small enterprises. Moreover, the rate of decline in employment in medium-sized enterprises in Kyrgyzstan from 2001 to January-September 2024 reached 43.74%. This once again highlights the crucial role that small business plays in the social dimension of Kyrgyz society, particularly in job creation and unemployment reduction.

Job creation, in turn, directly influences indicators of the population's social welfare, including quality of life, household income levels, and the social status of each citizen. Therefore, increases in household income improve living standards and contribute to poverty reduction. Small enterprises constitute a strategic mechanism for employment generation, poverty alleviation, and the establishment of sustainable employment[33].

In addition to creating jobs, it is important to emphasise that small businesses shape labour market conditions by offering the population opportunities for diverse forms of employment. These more flexible work arrangements encourage the active involvement of new employees. This particularly applies to working time regimes that are more attractive to various social groups, such as students, individuals engaged in multiple jobs simultaneously, or people with relatively low competitiveness in the labour market, including those without higher education. Flexible and diversified forms of labour include part-time employment, temporary work, casual work, as well as secondary employment and supplementary income-generating activities[34].

At the international level, researchers have noted that SMEs make a substantial contribution to corporate social responsibility (CSR), thereby fostering improvements in the environment in which they operate. The implementation of CSR practices in small businesses is significantly influenced by the United Nations Global Compact[35], one of the most prominent initiatives in the field of corporate sustainability. This document encompasses various CSR principles from

---

33 A. HAJIYEVA, A. HAJIYEVA, K. KHUDAVERDIYEVA, N. ATAKISHIYEVA, *Small and medium-sized businesses as a factor influencing the level of employment*, Australasian Accounting, Business and Finance Journal, 2025, 19(2), 120–143.

34 S. PORKODI, A.M. RAMAN, *Success of cloud computing adoption over an era in human resource management systems: A comprehensive meta-analytic literature review*, Management Review Quarterly, 2025, 75(2), 1041–1075.

35 UNITED NATIONS GLOBAL COMPACT, *The Ten Principles of the UN Global Compact*, 2025.

economic, social, and environmental perspectives. By adhering to this compact, enterprises commit to upholding established principles in the conduct of their core activities. The conditions for fulfilling these principles are uniform for all companies, regardless of their size, market significance, or operational experience. Thus, the United Nations Global Compact serves as an accessible guideline for every operating enterprise[36]. The European Commission defines CSR as a concept by which enterprises voluntarily integrate sustainability principles into their operations while engaging with different stakeholders[37].

Each enterprise may choose to focus on one or more of the three pillars of sustainability – environmental, economic, and social – in its practical implementation. Entrepreneurs often combine these aspects into an integrated system. While some view CSR as an ethical issue, others consider it a stakeholder-driven approach based on stakeholder needs. Despite these varying perspectives on CSR adoption among entrepreneurs, a common element is evident: corporate responsibility towards all segments of society, including partners, consumers, employees, and others[38,39]. Multiple definitions converge on the same core characteristics of CSR: its implementation goes beyond legal requirements; externalities (i.e., side effects of business activities) are controlled and internalised by the enterprise; the interests of a broad range of stakeholders are taken into account; and social and economic responsibilities are harmoniously balanced. Environmental and social values are embedded in the CSR strategy, which should prevail over mere philanthropic activities. Key thematic areas in strategic CSR management include legal, ethical, philanthropic, and economic concerns. In practice, this concept is governed by the ISO 26000:2010 standards[40].

36 A.M. FET, H. KNUDSON, *Implementing corporate social responsibility*, Encyclopedia of Sustainable Technologies, 2017, 125–130.

37 K. NOTI, F.M. MUCCIARELLI, C. ANGELICI, V. POZZA, M. PILLININI, *Corporate social responsibility and its implementation into EU company law*, Policy Department for Citizen's Rights and Constitutional Affairs, 2020.

38 A. TLEUBAYEV, S. KERIMKHULLE, M. TLEUZHANOVA, A. UCHKAMPIROVA, Z. BULAKBAY, R. MUGAUINA, Z. TAZHIBAYEVA, A. ADALBEK, Y. ISKAKOV, D. TOLEUBAY, *Econometric analysis of the sustainability and development of an alternative strategy to gross value added in Kazakhstan's agricultural sector*, Econometrics, 2024, 12(4), 29.

39 G.G. MAYIS, B.V. SHAHIN, G.T. SHAFA, A.J. YEGANA, O.S. MEHPARE, *Granger causality analysis of foreign trade impact on economic growth and some socioeconomic indicators: Case of Azerbaijan*, WSEAS Transactions on Business and Economics, 2021, 18, 276–283.

The adoption of CSR by small enterprises positively affects their market competitiveness by fostering stronger stakeholder relationships, which in turn leads to increased customer satisfaction and repeat purchases of goods, services, or works. Entrepreneurs not only shape and enhance social entrepreneurship but also promote the sustainable development of their enterprises while developing human capital[41]. In other words, small businesses contribute not only to economic growth but also to the accumulation of social wealth. Small enterprises possess the capacity to manage, generate income, and sustain their resources to ensure effective performance[42].

Kyrgyz small enterprises are no exception in this regard. Given the challenges in Kyrgyzstan's social indicators, entrepreneurs should pay greater attention to the social component of CSR, thereby increasing their responsibility towards employees. This concerns both fair remuneration and professional development opportunities. One of the key challenges for small businesses in Kyrgyzstan is the level of financial literacy. Since knowledge is one of the main determinants of small enterprise development, SMEs should devote more attention to improving this aspect[43]. Central Asian countries generally exhibit low levels of financial literacy. A large proportion of the population remains uninterested in acquiring information about the financial market, its opportunities, and services, despite the government's 2016-2020 programme to enhance financial literacy[44]. For entrepreneurs who have already started or plan to start a business in the near future, financial literacy is one of the critical components for successful business operation. Therefore, the Kyrgyz government should take measures to minimise this issue and mitigate its impact on the performance of small businesses. Given that

40 ISO, ISO 26000:2010. *Guidance on social responsibility*, International Organization for Standardization, 2010.

41 M.-T. MÉNDEZ-PICAZO, M. GALINDO-MARTÍN, M.-S. CASTANO-MARTÍNEZ, *Effects of sociocultural and economic factors on social entrepreneurship and sustainable development*, Journal of Innovation & Knowledge, 2021, 69–77.

42 I.R. MAKSUM, A.Y.S. RAHAYU, D. KUSUMAWARDHANI, *Social enterprise approach to empowering SMEs in Indonesia*, Journal of Open Innovation, 2020, 50.

43 K. WACH, *A typology of small business growth modelling: A critical literature review*, Entrepreneurial Business and Economics Review, 2020, 159–184.

44 P.J. MORGAN, Y. ZHANG, D. KYDYRBAYEV, *Overview of financial inclusion, regulation, financial literacy, and education in Central Asia and South Caucasus*, ADBI Working Paper, 2018, No. 878.

small entrepreneurs often perform multiple managerial functions simultaneously, they require additional information, skills, and experience to solve business-related problems. Entrepreneurs also need knowledge to make effective decisions regarding accounting, planning, cash flow management, and cost calculation, all of which influence the overall efficiency of business operations[45]. While larger enterprises can provide the necessary resources for staff training and skills development, small enterprises often lack such opportunities or access them to a minimal extent[46]. Therefore, it would be advisable for the Kyrgyz government to develop a targeted programme to address this issue, thus facilitating future economic growth through more effective small business operations.

For the successful operation of SMEs, financial, human, and physical capital are essential, as these resources directly influence the business life cycle[47]. The shortage of such resources results in the closure of approximately 85% of SMEs worldwide within the first five years of operation. This statistic is primarily due to entrepreneurs focusing on day-to-day survival in the market while simultaneously fulfilling multiple managerial roles. Despite their advantages and positive socio-economic impacts, small enterprises in Kyrgyzstan face a major challenge – difficulties in obtaining initial financing, which plays a decisive role in their further development.

In most cases, entrepreneurs launching small businesses rely on their own assets for investment. Unlike large companies listed on stock exchanges, which can issue shares and bonds to raise capital, small enterprises lack this opportunity due to their legal status[48]. Consequently, banks become an essential source of financing for SMEs. However, factors such as the short duration of bank-entrepreneur relationships and low creditworthiness in the early years of operation affect

45 P.M. PANTEGHINI, *Tax evasion and entrepreneurial flexibility*, Public Finance Review, 2000, 28(3), 199–209.

46 P. RACHAPAETTAYAKOM, M. WIRIYAPINIT, N. COOHA ROJANANONE, S. TANTHANONGSAKKUN, N. CHAROENRUK, *The need for financial knowledge tools by small entrepreneurs*, Journal of Innovation and Entrepreneurship, 2020, 25.

47 V. VOLKOV, *The Russian ethnic minority in the organizational and entrepreneurial culture of Latvia*, Ethnic Minorities: Cultural Perspectives, Stereotypes and Social Challenges, 2025, 59–80.

48 S. ABBASOVA, M. ALIYEVA, L. HUSEYNOVA, *Accounting information transparency and business performance: A case of G7 construction companies*, Problems and Perspectives in Management, 2022, 20(4), 518–531.

access to credit, especially long-term loans[49]. Although individual strategies for SME financing exist in the country, along with a formulated financial inclusion strategy, their practical impact remains limited. Therefore, both existing and newly registered small enterprises should actively seek additional funding to improve their infrastructure and organisational frameworks. Banks offer long-term loans for working capital, which is critical for business growth.

SMEs also derive substantial benefits from innovation, defined as the practical implementation of new ideas for improving products (services or works), the introduction of new products, new processes, entry into new markets, or the creation of new business models. Innovation is considered one of the key determinants of SME development. Contemporary SMEs focus on attracting and retaining new customers, which enables them to expand their client base and contribute to national economic growth[50]. In pursuit of this goal, small businesses utilise innovation. For example, in Sub-Saharan Africa, innovation served as a launchpad for SME development and national economic advancement. Through continuous innovation, small businesses outperformed close competitors and secured their position in competitive markets[51]. Thus, SMEs contribute to sustainable economic development. Rapid digitalisation further accelerates this process. It is imperative that the Kyrgyz government considers this experience and fosters conditions conducive to innovation adoption in small businesses. This can be achieved through effective financing mechanisms. To this end, the Kyrgyz government should not only invest in multiple sources of venture capital for SME financing but also introduce fiscal incentives for investors. On the one hand, this entails developing robust support and motivation programmes for SMEs in their early stages. On the other hand, it is advisable to create conditions under which venture capital becomes more accessible to entrepreneurs.

---

49 Ș.C. GHERGHINA, M.A. BOTEZATU, A. HOSSZU, L.N. SIMIONESCU, SMEs: *The engine of economic growth through investments and innovation*, Sustainability, 2020, 347.

50 M. ALIYEV, M. GULIYEV, U. ABDULLAEV, L. HUSEYNOVA, G. AZIZOVA, *Strategies for improving the competitiveness of agricultural products and China's trade policy in the world market*, Scientific Horizons, 2024, 27(11), 129–140.

51 K.A. BISENOVNA, S.A. ASHATULY, L.Z. BEIBUTOVNA, K.S. YESILBAYULY, A.A. ZAGIEVNA, M.Z. GALYMBEKOVNA, O.B. ORALKHANULY, *Improving the efficiency of food supplies for a trading company based on an artificial neural network*, International Journal of Electrical and Computer Engineering, 2024, 14(4), 4407–4417.

To implement measures aimed at addressing the problems of SME financing and reducing barriers to accessing financial resources, it is advisable for Kyrgyz small enterprises to consider the experience of African countries in tackling similar challenges. In particular, initiating the strategy should begin with the strengthening of financial institutions, which can subsequently enhance the capacity of microfinance institutions offering services to small businesses[52]. Furthermore, the experience of several Asian countries may also prove useful, where the financial system was initially adjusted to address the financing issues of SMEs. These countries established clusters that support small enterprises in jointly seeking financial assistance. Additionally, such clusters offer the function of mutual guarantee. Owing to these clusters, SMEs gain access to loans with lower interest rates or can receive funding from a centralised agency responsible for the functioning of the cluster system. Another potential solution for accessing financial resources by Kyrgyz small businesses lies in fostering partnerships not with banking institutions but with large enterprises. As large enterprises possess greater capabilities and access to financial resources, the Government of Kyrgyzstan could develop a programme to incentivise large companies to support small businesses. This could be implemented through supplier networks. On the one hand, suppliers can deliver necessary resources, while on the other, they may serve as guarantors for loans provided to SMEs by financial institutions.

To prevent economic recession and rising unemployment, the Kyrgyz government should focus on creating conditions for a more effective SME financing system, on the one hand, and improving the financial literacy of entrepreneurs and the general population, on the other. Importantly, the implemented measures must be aligned with broader national programmes for economic and social development in Kyrgyzstan. In this way, the government can address two key challenges affecting the operation of small businesses and enhance the effectiveness of SMEs' contributions to the country's socio-economic development.

52 A.I. LEONOW, M.N. KONIAGINA, S.V. PETROVA, E.V. GRUNT, S.Y. KERIMKHULLE, V.G. SHUBAEVA, *Application of information technologies in marketing: Experience of developing countries*, Espacios, 2019, 40(38).

4. Discussion

Based on an extensive literature review and analysis of official statistical data, it can be asserted that small businesses in Kyrgyzstan play a pivotal role in the national economy. SMEs significantly impact the Kyrgyz economy as they hold a large share in the output of goods (works and services) in sectors such as trade, hospitality, and contract work, with a somewhat lesser influence in agriculture and industry. The findings also indicate that SMEs have a substantial effect on job creation and employment, thereby contributing not only to the improvement of the national economy but also to the social well-being of the population. Given the issues of high unemployment and poverty in Kyrgyzstan, the development of small business can address these problems and thus contribute to the enhancement of both the national economy and the population's well-being. The findings of the study indicate that, for the successful development of small enterprises in Kyrgyzstan and their subsequent positive impact on the country's socio-economic landscape, two principal challenges act as significant constraints in this process: limited access to financial resources for small entrepreneurs and a low level of financial literacy among the population of Kyrgyzstan.

The study identified two principal challenges that hinder the successful development of small businesses in Kyrgyzstan and their positive impact on the country's socio-economic development: limited access to financial resources for small entrepreneurs and a low level of financial literacy among the population. financial literacy in the population adversely affects the operation of SMEs and hampers the country's socio-economic progress. These findings contradict those of Frimpong et al.[53], who, while investigating the relationship between financial literacy and SME performance in Ghana, found that the relationship is indirect rather than direct. According to their research, financial literacy does not significantly influence the development of the national economy or social welfare indicators. However, the authors highlighted that access to digital finance has a direct and positive impact on SME outcomes, specifically enhancing productivity. This suggests that access to digital finance acts as a partial mediator

53 S.E. FRIMPONG, G. AGYAPONG, D. AGYAPONG, *Financial literacy, access to digital finance and performance of SMEs*, Cogent Economics & Finance, 2022, 2121356.

linking financial literacy and the productivity of small and medium-sized enterprises.

This study makes an important contribution to the existing literature, extending the research of Abduzhalieva et al.[54]. Analysing the prospects for SME development in Kyrgyzstan within the green economy sector based on expert surveys, Abduzhalieva et al. concluded that SMEs became a strategic priority for the country's economic development in 2024. Sectors such as trade, hospitality, and agriculture are identified as the primary fields of SME activity in Kyrgyzstan. However, two major barriers reduce the operational efficiency of SMEs: difficulties in capital acquisition and challenges in attracting highly qualified personnel. These results fully align with the findings of the present study and further underscore the necessity of addressing the two main obstacles hindering SME growth – and by extension, the development of the national economy and public welfare.

In a study examining the constraints to SME operations in Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan, Nizaeva and Coskun[55] concluded that access to finance is among the top three challenges faced by small businesses in Central Asian countries. Specifically, 9.4% of surveyed entrepreneurs cited financing as a major impediment. Other leading obstacles included high competition (12.0%), high taxation (10.7%), and corruption (9.7%). These findings partially correspond to those of the current study. However, only 6.7% of respondents identified an unskilled workforce as a significant constraint, whereas in the present study, this factor emerged as one of the primary barriers impeding SME functioning in Kyrgyzstan and its influence on socio-economic development.

To address SME financing challenges, the current study offers several recommendations for proactive government intervention. The most viable measures include developing state mechanisms to ensure access to long-term credit, providing fiscal incentives for investors, creating collective financing clusters, and implementing a system of mutual guarantees[56]. Moreover, it is crucial to promote

54 E. ABDUZHALIEVA, T. DOLONOVA, N. MEYMANKULOVA, S. SAVINA, *Prospects for the development of small and medium-sized businesses in a green economy in Kyrgyzstan,* E3S Web of Conferences, 2024, 04009.

55 M. NIZAEVA, A. COSKUN, *Determinants of the financial constraint and its effects on SME growth in Central Asia*, Eurasian Journal of Business and Economics, 2021, 1–28.

56 I. MUKAMBAEVA, A. SAYAKBAEVA, N. AKYLBEKOVA, N. MUKAMBAEV, A. ERMEKOVA, E. SHAMBETOVA, *Influence of the state investment budget on the Kyrgyz agricultural*

collaboration between SMEs and large enterprises by designing incentive schemes for large businesses to support small firms and engaging suppliers as credit guarantors – building on the successful experiences of African and Asian countries.

Other researchers have likewise identified financing difficulties as a principal constraint for SMEs globally. For example, Lam and Liu[57], investigating potential solutions to financial access issues, highlighted that access to financial resources remains a key problem for Chinese SMEs. Rajamani et al.[58], analysing challenges faced by micro, small, and medium-sized enterprises in India, reached similar conclusions, noting that financial constraints negatively affect SME operations and national economic growth. Comparable findings were reported by Zarrouk et al.[59] in the context of the United Arab Emirates (UAE) and by Chilembo[60] in his study of Lusaka, Zambia's capital.

In their examination of SME financing issues, Lam and Liu concluded that access to finance remains one of the most significant gaps for SMEs on a global scale. The authors noted that enhancing financial accessibility in combination with preventative measures – especially in rural areas – could partially resolve financing issues. Developing a robust financial infrastructure, including a unified credit registry, could improve SME lending[61]. These conclusions partially align with the findings of the present study, though this research did not distinguish between SMEs in urban and rural areas. Additionally, Lam and Liu advocate for expanding funding sources through the use of technology and indirect guarantees to improve SME access to finance.

sector through data analysis, SIST 2024 – 2024 IEEE 4th International Conference on Smart Information Systems and Technologies, Proceedings, 2024, 409–414.

57 W.R. LAM, Y. LIU, *Tackling SME financing in China*, Annals of Economics & Finance, 2020, 209–239.

58 K. RAJAMANI, N.A. JAN, A.K. SUBRAMANI, A.N. RAJ, *Access to finance: Challenges for MSMEs in India*, Engineering Economics, 2022, 73–85.

59 H. ZARROUK, M. SHERIF, L. GALLOWAY, T. EL GHAK, *Entrepreneurial orientation and SME performance in UAE*, Journal of Asian Finance, Economics and Business, 2020, 465–474.

60 T. CHILEMBO, *A study of the factors affecting small and medium enterprises (SMEs) access to finance*, American Journal of Industrial and Business Management, 2021, 437–460.

61 M. GULIYEV, H. MURADOVA, L. HAJIYEVA, L. HUSEYNOVA, *Comparative analysis of marketing strategies of global corporations in industrial and innovation clusters in Europe and China*, Strategic Change, 2025.

Similar conclusions were drawn by Chilembo, who argued for the utilisation of non-traditional, alternative financing mechanisms for small businesses, citing the numerous barriers associated with conventional financing channels. Zarrouk et al. also reached analogous conclusions in their study of SME effectiveness and access to finance in the UAE. These findings further reinforce the relevance of the present study's policy recommendations for the Kyrgyz government – namely, to broaden financing opportunities for small businesses beyond traditional banking institutions.

5. Conclusions

As a result of the conducted research, it has been established those small businesses contribute to a country's economic development through the production of goods (services, works) across various sectors of the national economy and by contributing to the overall volume of the country's GDP. In exerting such influence, small enterprises have a positive impact on the social dimension of national development, particularly by reducing levels of unemployment and poverty through the creation of jobs.

In the Kyrgyz Republic, small enterprises make a particularly significant contribution to GDP in sectors such as hospitality and catering, trade, agriculture, industry, and construction contracting. Between 2001 and 2023, the share of small businesses in the country's GDP increased by 1.4%. Given the persistently high levels of poverty (29.8% in 2023) and unemployment (4.1% in 2023) in the Kyrgyz economy, the creation of new jobs by small enterprises addresses these pressing issues, as they provide approximately 2% of employment across the entire economically active population.

However, two major challenges hinder the effective operation of SMEs and their potential to facilitate the country's economic and social development through small business activity: limited access to finance for small enterprises and the generally low level of financial literacy among the Kyrgyz population, including both current and prospective entrepreneurs. Addressing these challenges constitutes an urgent task for the Kyrgyz government.

For Kyrgyzstan, the implementation of a comprehensive set of measures to resolve these two issues is both necessary and advisable. Based on an analysis of successful practices in promoting social welfare and economic growth in African and Asian countries, it has been determined that it is appropriate to enhance access to long-term credit, establish clusters for joint financing, and introduce a system of collective guarantees. Additionally, it is important to incentivise cooperation between SMEs and large enterprises by developing mechanisms to encourage the latter's support for small business and to engage suppliers as loan guarantors. Moreover, the development and implementation of programmes to promote social entrepreneurship – with integrated components for improving the financial literacy of small business employees – should be regarded as one of the government's policy priorities. The practical implementation of such measures could enhance the performance of small businesses in Kyrgyzstan and strengthen their role in driving the country's socio-economic development.

The prospects for future research lie in incorporating the experiences of other Central Asian or post-Soviet countries into the analysis in order to examine and compare successful approaches for addressing the challenges faced by Kyrgyz small enterprises. However, this particular study draws exclusively on the experiences of Asian and African countries when formulating recommendations, which constitutes a limitation of the current research.

Teimuraz Sartania
PhD
Faculty of Economics
Ivane Javakhishvili Tbilisi State University
teimurazsartania9@gmail.com

Economic development strategies in eastern european countries and their impact on sustainable growth

Abstract

The aim of this study was to analyse the economic development strategies of Poland, Romania, Bulgaria, Hungary, Georgia, and Ukraine, and to determine which of these most effectively promote sustainable economic growth.
The methodology employed consisted of qualitative and comparative analysis of the economic strategies implemented by these countries. The study of the impact of such strategies on sustainable growth, including the assessment of economic, social, and environmental dimensions, has become a significant area of academic interest.
It was found that the success of economic development in Eastern European countries has largely depended on their integration into global economic structures such as the European Union, as well as on effective attraction of foreign investment and the utilisation of international funds. The implementation of market reforms and the creation of a favourable business climate – as exemplified by Poland's GDP growth of 3.1% in 2023 – have played a key role in economic recovery and improving living standards.
At the same time, the study revealed that corruption and political instability remain serious barriers to sustainable development in several countries, including Ukraine (ranked 132nd in the Corruption Perceptions Index) and Bulgaria (72nd). Despite economic reforms, these countries continue to suffer from weak institutions and ineffective governance, which hinder long-term growth. Moreover, achieving sustainable development requires more decisive action in environmental protection and social policy, in line with the EU's goal of reducing carbon

emissions by 55% by 2030.
The study concludes that further reforms and the strengthening of state institutions are essential to ensure sustainable growth in the region. The practical value of this research lies in identifying the most effective economic development strategies that can form the basis for shaping sustainable growth policies in transition economies.

Keywords: Reforms – Investment – Corruption – Political instability – Environment – Social policy

1. Introduction

The Eastern European countries – Poland, Romania, Bulgaria, Hungary, Georgia, and Ukraine – have undergone significant transformations since transitioning from socialist to market economies. These transformations necessitated the formulation and implementation of new economic development strategies aimed at achieving sustainable growth and integration into the global economy. Key conditions for success included inflows of foreign investment, the enactment of legislative and institutional reforms, improvements to the business environment, and active participation in international economic alliances, notably the European Union. However, despite these achievements, the region continues to face a number of challenges, including corruption, political instability, and the need to address social and environmental issues.[1] Apostu et al.[2] highlighted the considerable role of EU integration, which opened access to new markets and investment resources while contributing to greater financial stability across the region. EU membership served as a stimulus for reforms aimed at institutional development and improving the business climate, thereby supporting sustainable economic growth. Moughari and Daim[3] emphasised the importance of moderni-

1 K. TAKACS HAYNES, and M. RASKOVIĆ, Living with corruption in Central and Eastern Europe: Social identity and the role of moral disengagement. *Journal of Business Ethics*, 174(4), 2021, 825-845. https://doi.org/10.1007/s10551-021-04927-9

2 S.A. APOSTU, I. GIGAURI, M. PANAIT, and P.A. MARTÍN-CERVANTES, Is Europe on the way to sustainable development? Compatibility of green environment, economic growth, and circular economy issues. *International Journal of Environmental Research and Public Health*, 20(2), 2023, 1078. https://doi.org/10.3390/ijerph20021078

3 M.M. MOUGHARI, and T.U. DAIM, Developing a model of technological innovation for export development in developing countries. *Technology in Society*, 75, 2023, 102338.

sing export-oriented industries and actively adopting innovative technologies, which helped strengthen the region's competitive position in the global market. They also noted the need for prioritising the development of high-tech sectors to reduce reliance on raw material exports. Lashitew et al.[4] studied the significance of small and medium-sized enterprises (SMEs) in the economy, underscoring their potential to diversify economic structures and create employment. Support for the SME sector played a critical role in ensuring sustainable long-term growth and helped to reduce social tensions by generating jobs and fostering entrepreneurial initiative. Such support included simplifying business registration procedures, reducing tax burdens, expanding access to finance, and developing networks of business incubators. Rath et al.[5] discussed the use of environmentally friendly technologies as a key element of sustainable development and reducing environmental impact. The adoption of green innovations contributed to sustainable economic growth and provided countries with competitive advantages on the international stage. Mellander and Florida[6] identified human capital as a fundamental factor enabling innovation and productivity growth in the region. Investment in education systems and scientific research was regarded as the foundation for long-term sustainable economic progress.

Campos et al.[7] argued that structural reforms aimed at economic liberalisation and the simplification of market regulations laid the groundwork for establishing sustainable economic conditions. Changes to financial and labour legislation played a key role in attracting foreign investment and stimulating growth.

https://doi.org/10.1016/j.techsoc.2023.102338

4 A.A. LASHITEW, M.L. ROSS, and E. WERKER, What drives successful economic diversification in resource-rich countries? *The World Bank Research Observer*, 36(2), 2021, 164-196. https://doi.org/10.1093/wbro/lkaa001

5 P. RATH, M. JINDAL, and T. JINDAL, A review on economically-feasible and environmental-friendly technologies promising a sustainable environment. *Cleaner Engineering and Technology*, 5, 2021, 100318. https://doi.org/10.1016/j.clet.2021.100318

6 C. MELLANDER, and R. FLORIDA, The rise of skills: Human capital, the creative class, and regional development. In: M.M. FISCHER, P. NIJKAMP (Eds.), *Handbook of Regional Science*. Berlin, Heidelberg: Springer, 2021, 707-719. https://doi.org/10.1007/978-3-642-23430-9_18

7 N.F. CAMPOS, P. DE GRAUWE, and Y. JI, Structural reforms and economic performance: The experience of advanced economies. *Journal of Economic Literature*, 63(1), 2025, 111-163. https://doi.org/10.1257/jel.20231527

Zhang et al.[8] stressed the importance of building modern infrastructure to support economic growth and successfully attract investment. The development of transport, energy, and digital systems was viewed as a vital factor in boosting economic activity and promoting sustainable development. Ghauri et al.[9] explored the influence of globalisation and international trade on the region's development, emphasising the importance of external economic factors. Their work analysed ways in which the region could adapt to changing global economic conditions and strengthen its economic position. Wang and Ma[10] studied public-private partnerships, noting that successful cooperation between the state and private sector is key to sustainable development. Their research highlighted the role of strategic planning and coordination of economic efforts in achieving shared goals. Sun and Razzaq[11] focused on the importance of social welfare systems and institutional reform, analysing their impact on maintaining social stability and stimulating economic growth. Effective social programmes were seen as vital elements of successful economic policy that support harmonious development. Nonetheless, current academic literature pays insufficient attention to the integration of environmental and social dimensions into the strategic models of sustainable economic growth in Eastern European countries. Specifically, the mechanisms by which environmental policies impact economic outcomes, the degree of social inclusivity in economic strategies, and the relationship between growth and the reduction of social inequality at the regional level remain under-researched.

The aim of this study was to analyse the economic development strategies of Eastern European countries and assess their impact on achieving sustainable growth.

8 J. ZHANG, R. ZHANG, J. XU, and J. WANG, G. SHI, Infrastructure investment and regional economic growth: Evidence from Yangtze River Economic Zone. *Land*, 10(3), 2021, 320. https://doi.org/10.3390/land10030320

9 P. GHAURI, R. STRANGE, and F.L. COOKE, Research on international business: The new realities. *International Business Review*, 30(2), 2021, 101794. https://doi.org/10.1016/j.ibusrev.2021.101794

10 N. WANG, and M. MA, Public-private partnership as a tool for sustainable development–What literatures say? *Sustainable Development*, 29(1), 2021, 243-258. https://doi.org/10.1002/sd.2127

11 Y. SUN, and A. RAZZAQ, Composite fiscal decentralisation and green innovation: Imperative strategy for institutional reforms and sustainable development in OECD countries. *Sustainable Development*, 30(5), 2022, 944-957. https://doi.org/10.1002/sd.2292

Objectives of the study:

- To examine the impact of integration into international economic organisations, such as the European Union, on the region's economic development.
- To assess the effects of market reforms and investment activity on the competitiveness of the countries.
- To analyse the significance of environmental and social factors in ensuring long-term sustainable growth in these states.

2. Methodology

This study examined economic development strategies in Eastern European countries and their impact on sustainable economic growth between 2019 and 2024.

The initial phase of the study involved outlining the theoretical foundations of sustainable economic growth. Key concepts were considered, highlighting the importance of balancing economic development, social justice, environmental protection, and the rational use of natural resources.

Subsequently, a review of national economic strategies across the selected countries was carried out using comparative analysis and descriptive statistics. The countries chosen for the study – Poland[12], Romania[13], Bulgaria[14], Hungary[15], Georgia[16], and Ukraine[17] – reflect a diversity of political and economic contexts and reform stages, allowing for an assessment of the effectiveness of their strategies during the transition from socialist to market economies. For each country, the analysis focused on the main components of

12 Organisation for Economic Co-operation and Development, OECD Economic Surveys: Poland. Paris: OECD Publishing, 2023.

13 INTERNATIONAL MONETARY FUND, Romania: 2023 Article IV Consultation – Press Release; Staff Report; and Statement by the Executive Director for Romania (IMF Country Report No. 23/74). International Monetary Fund, 2023.

14 WORLD BANK, Bulgaria's Convergence Quest: Country Economic Memorandum. World Bank. Washington: D.C.: World Bank, 2022.

15 Organisation for Economic Co-operation and Development, *OECD Economic Surveys: Hungary*. Paris: OECD Publishing, 2023.

16 WORLD BANK, *Georgia: Towards green and resilient growth*. Washington: World Bank, 2020.

17 WORLD BANK, Ukraine rapid damage and needs assessment – february update. World Bank. WORLD BANK, Washington, D.C.: World Bank, 2023.

economic strategies: reform objectives, investment attraction mechanisms, methods of stimulating economic growth, changes in the social sphere, anti-corruption measures, and institutional reforms. Special attention was given to Georgia's economic strategy and its impact on sustainable growth[18,19], particularly regarding market liberalisation and the simplification of administrative procedures, based on statistical data.[20,21]

The study also analysed the role of foreign investment attraction methods, infrastructure development, support for SMEs, and the implementation of educational and innovation programmes in fostering sustainable growth. In addition, the contribution of international organisations such as the European Union[22] and the International Monetary Fund[23] to the reform process and the development of sustainable strategies was evaluated.

The research further assessed the impact of the selected strategies on the three core pillars of sustainability: economic, social, and environmental. Attention was given to the development of renewable energy, poverty reduction, reducing social inequality, improving living standards, strengthening legal institutions, and improving the business climate. The analysis involved comparing the efforts of different countries in achieving the Sustainable Development Goals (SDGs), including the eradication of poverty, the creation of decent jobs, the provision of quality education, sustainable economic growth, combating climate change, and adopting the principles of a green economy.

In the final stage, the study analysed the major challenges facing countries in the region in the implementation of sustainable growth strategies. These in-

18 INTERNATIONAL MONETARY FUND, Georgia: 2023 Article IV consultation – press release; staff report; and statement by the executive director for Georgia (IMF Country Report No. 23/185). International Monetary Fund, 2023.

19 INTERNATIONAL MONETARY FUND, Georgia: Staff report for the 2021 article IV consultation (IMF Country Report No. 21/xx), 2021. https://www.imf.org/-/media/Files/Publications/CR/2021/English/1GEOEA2021001.ashx

20 WORLD BANK, Georgia overview, 2023. https://www.worldbank.org/en/country/georgia/overview

21 EUROSTAT, Key figures for European neighbourhood East countries, 2023. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Key_figures_for_European_Neighbourhood_East_countries

22 EUROPEAN UNION, European union official website, 2025. https://european-union.europa.eu/index_en

23 INTERNATIONAL MONETARY FUND, International monetary fund official website, 2025. https://www.imf.org/en/Home

cluded a corruption, underdeveloped institutional environments, demographic decline, brain drain, and the influence of external political factors such as conflicts, sanctions, and global competition.

A comparative analysis of the effectiveness of economic strategies across the countries was conducted, making it possible to identify the factors that facilitated a successful transition to sustainable development and those that served as obstacles.

3. Results

As of 2025, Eastern European countries are facing new challenges, including globalisation – which demands a high level of adaptation to international standards – as well as climate change and a demographic crisis characterised by population ageing and a shrinking workforce. These issues necessitate a rethinking of economic policy and sustainable growth strategies aimed at shaping an economy that is not only efficient and profitable but also equitable, environmentally sustainable, and capable of ensuring a decent quality of life for all citizens.[24] Thus, sustainable growth has become a central pillar of the development strategies of Eastern European countries, where historical, social, and environmental dimensions require careful consideration and a comprehensive approach.

Eastern European countries, having transitioned from centrally planned economies and embarked on market reforms, are developing diverse strategies to achieve sustainable economic growth. Each country, taking into account its political, historical, and economic specificities, has chosen its own development path; however, they are united by common goals – enhancing economic competitiveness, attracting foreign investment, and improving the social sphere.[25] Both qualitative and quantitative methods were used to process and compare data, including comparative analysis of statistical indicators such as gross domestic product (GDP) growth rates, unemployment levels, foreign investment volumes, and

24 M. FERRAZZI, J. SCHANZ, and M. WOLSKI, *Growth and competitiveness in Central, Eastern and South-Eastern Europe: The role of innovation* (No. 2025-01). EIB Working Papers. Luxembourg: European Investment Bank, 2025.

25 M. OKLANDER, M. CHAIKOVSKA, and O. SHKEDA, Framing as a tool of influencer marketing in the management of marketing communications and brand representation. *Economics of Development*, 21(3), 2022, 15–26. https://doi.org/10.57111/econ.21(3).2022.15-26

other relevant metrics. The summary data on key economic indicators and institutional characteristics of the region's countries, presented in Table 1, highlight both the commonalities and the differences in the strategies being implemented.

Table 1. Overview of economic strategies

Country	EU Accession Year	GDP Growth (%)	Unemployment Rate (%)	Foreign Investment / Revenue	Notable Indicators
Poland	2004	4.5% (2019)	2.9% (2019)	EUR 100 billion from EU funds (2004-2020)	Rising competitiveness, infrastructure projects
Romania	2007	4.1% (2019)	3.9% (2019)	Over EUR 5 billion in IT industry (est.)	One of Europe's largest IT hubs
Bulgaria	2007	3.7% (2019)	4.2% (2019)	EUR 4.5 billion from tourism (2019)	Issues with corruption and judiciary
Hungary	2004	4.9% (2019)	3.3% (2019)	Approx. EUR 2.5 billion FDI annually	60% of jobs in SMEs (2019)
Georgia	–	5.0% (2019)	11.6% (2019)	EUR 1.3 billion in FDI (2019)	7th in Doing Business (2020); 21.6% below poverty line
Ukraine	–	3.2% (2019)	8.6% (2019)	EUR 5 billion IMF loan (2020)	Anti-corruption efforts, institutional reforms

[Source: compiled by the author based on [26,27,28,29,30,31]]

26 Organisation for Economic Co-operation and Development, OECD Economic Surveys: Poland. Paris: OECD Publishing, 2023.

27 INTERNATIONAL MONETARY FUND, Romania: 2023 Article IV Consultation – Press Release; Staff Report; and Statement by the Executive Director for Romania (IMF Country Report No. 23/74). International Monetary Fund, 2023.

28 WORLD BANK, Bulgaria's Convergence Quest: Country Economic Memorandum. World Bank. Washington: D.C.: World Bank, 2022.

29 Organisation for Economic Co-operation and Development, *OECD Economic Surveys: Hungary*. Paris: OECD Publishing, 2023.

30 WORLD BANK, *Georgia: Towards green and resilient growth*. Washington: World Bank, 2020.

31 WORLD BANK, Ukraine rapid damage and needs assessment – february update. World Bank. WORLD BANK, Washington, D.C.: World Bank, 2023.

Poland serves as an example of successful economic reform and EU integration. Since the early 1990s, when it began its transition from a planned to a market economy, the country implemented large-scale reforms, including the privatisation of state-owned enterprises, trade liberalisation, and tax reforms. EU accession in 2004 granted Poland access to European funds, which became a key driver of infrastructure development, education system improvement, and support for innovative entrepreneurship. EU financial and structural funds contributed to the modernisation of transport and energy infrastructure, as well as the development of scientific research and technology start-ups. From 2004 to 2020, Poland received over EUR 100 billion from EU funds, which significantly improved infrastructure quality and strengthened economic competitiveness. This, in turn, enhanced the competitiveness of Polish goods and services on the global market and reduced unemployment from around 20% in the early 2000s to less than 3% by 2019. However, the country still faces important challenges, including the need for further social integration and addressing inequality.[32]

Romania, which joined the European Union in 2007, has implemented a series of wide-reaching economic reforms aimed at increasing the competitiveness of its economy, including improving the institutional environment, attracting foreign investment, and reducing poverty levels. In 2019, the country's GDP grew by 4.1%, reflecting the positive impact of these reforms. Significant progress has been made in the development of the IT sector, which has become one of the largest technology hubs in the region. However, Romania continues to face structural imbalances and institutional challenges such as inefficiencies in the judiciary and high levels of perceived corruption, which limit the country's ability to achieve sustainable growth.[33]

Bulgaria, also an EU member since 2007, has achieved noticeable success in strengthening macroeconomic stability, modernising infrastructure, and developing its tourism sector, which generated around EUR 4.5 billion in revenue in 2019. There has also been growth in foreign direct investment and the imple-

32 Organisation for Economic Co-operation and Development, OECD Economic Surveys: Poland. Paris: OECD Publishing, 2023.

33 INTERNATIONAL MONETARY FUND, Romania: 2023 Article IV Consultation – Press Release; Staff Report; and Statement by the Executive Director for Romania (IMF Country Report No. 23/74). International Monetary Fund, 2023.

mentation of infrastructure projects supported by EU structural funds. Nonetheless, institutional issues remain a serious obstacle to sustainable development. High levels of corruption, an inefficient judiciary, and weak governance mechanisms continue to hinder structural reforms and negatively impact the quality of the economic environment.[34]

Hungary has adopted a strategy focused on developing domestic production and supporting small and medium-sized enterprises (SMEs). In 2019, over 60% of the country's jobs were concentrated in this sector. The government has encouraged the development of agriculture, industry, and high-tech sectors. One of the key policies has been the support of domestic producers through tax incentives for small businesses and the promotion of innovation. The "Innovative Hungary" programme provides substantial subsidies for implementing new technologies and expanding production. Nevertheless, Hungary faces challenges in the legal and political spheres, which may jeopardise the long-term sustainability of its economic model. The government's policies to restrict the independence of the judiciary and the media have drawn criticism both within and beyond the EU. These political risks could undermine confidence in Hungary's economy and lead to long-term instability.[35]

Georgia provides an example of a country that, since the early 2000s, has pursued a strategy of market liberalisation and administrative simplification to attract foreign investment. Bureaucratic barriers were reduced, and tax system reform significantly improved the business climate, raising Georgia's global rankings for ease of doing business. In 2020, Georgia ranked 7th in the Doing Business index, encouraging significant investment inflows. Reforms in the energy and agricultural sectors also contributed to economic growth. However, the country continues to struggle with serious issues in social justice: economic inequality, high poverty rates, and insufficient social support measures remain persistent challenges. In 2020, 21.6% of the population lived below the poverty line.[36]

34 WORLD BANK, Bulgaria's Convergence Quest: Country Economic Memorandum. World Bank. Washington: D.C.: World Bank, 2022.

35 Organisation for Economic Co-operation and Development, *OECD Economic Surveys: Hungary*. Paris: OECD Publishing, 2023.

36 WORLD BANK, *Georgia: Towards green and resilient growth*. Washington: World Bank, 2020.

Ukraine is undergoing large-scale economic and political reforms aimed at restoring its economy following a prolonged period of political instability and armed conflict. In 2019, GDP grew by 3.2%, driven by reforms in the energy and agricultural sectors and macroeconomic stabilisation. The primary challenge remains combating corruption and reforming institutional structures. Reforms in the judicial system, tax policy, and energy efficiency are beginning to yield results, though trust in public institutions remains low. Ukraine is actively cooperating with international financial organisations and the European Union, seeking to modernise its economy, improve infrastructure, and create favourable conditions for SME development. However, economic instability and the ongoing conflict with Russia continue to exert significant pressure on the country's development. In 2020, Ukraine signed an agreement with the IMF, securing over USD 5 billion to stabilise the economy.[37]

Economic strategies across Eastern Europe vary depending on historical, political, and socio-economic context. Poland exemplifies successful EU integration and effective use of external resources. Romania and Bulgaria prioritise institutional reforms, while Hungary and Georgia emphasise domestic production and market liberalisation. Ukraine, in turn, faces ongoing issues with corruption and political instability while striving for deep economic transformation. Despite these varied approaches, all countries share a common priority – achieving sustainable development by balancing economic efficiency, social justice, and environmental stability.

A comprehensive analysis of sustainable economic growth in Eastern European countries is impossible without considering the environmental, social, and economic factors that significantly influence regional development. These elements are deeply interconnected and have a considerable impact on the long-term dynamics of national economies (Table 2). This study pays particular attention to Georgia, as its reform model, oriented towards market liberalisation and administrative simplification, represents a notable example of integrating these factors in the process of attracting foreign investment. Georgia was chosen due to the uniqueness of its reforms in the region, as well as the availability and relevan-

37 WORLD BANK, Ukraine rapid damage and needs assessment – february update. World Bank. WORLD BANK, Washington, D.C.: World Bank, 2023.

ce of data, making this case especially valuable for analysing sustainable growth in Eastern Europe.

Table 2. Impact of economic and social strategies on Georgia's sustainable development in 2024

Category	Subcategory	Indicator	Value
Environment	Share of renewables	Share of RES in total energy consumption	82.5%
	Solar energy development	Growth in solar energy production (2014-2024)	+3,900%
	Air quality	Average PM2.5 level (μg/m³)	14.5
	Waste management	Share of household waste recycled	35%
Social sphere	Poverty rate	Population below absolute poverty line	10.5%
	Unemployment rate	Official unemployment rate	13.9%
	Human Development Index	HDI	0.815 (high)
	Gender Equality Index	Gender equality index score	0.70
Economy	GDP growth	Real GDP growth	7.8%
	FDI inflow	Inflow of foreign direct investment	$590 million
	Public debt	Debt-to-GDP ratio	58%
	Doing Business ranking	Global position	7th
	Inflation	Annual inflation rate	7.5%

[Source: compiled by the author based on data from [38,39,40,41]]

These figures reflect Georgia's comprehensive approach to sustainable development, encompassing environmental, social, and economic domains. Environmentally, the country has achieved notable success in the use of renewable energy and the growth of solar power, significantly reducing its carbon footprint. Social indicators such as the reduction of poverty and unemployment, along with a high Human Development Index, point to a positive trend in the quality of life, despite ongoing challenges like a moderate level of gender equality. The economy demonstrates stable GDP growth and attractiveness to foreign investors,

38 INTERNATIONAL MONETARY FUND, Georgia: 2023 Article IV consultation – press release; staff report; and statement by the executive director for Georgia (IMF Country Report No. 23/185). International Monetary Fund, 2023.

39 INTERNATIONAL MONETARY FUND, Georgia: Staff report for the 2021 article IV consultation (IMF Country Report No. 21/xx), 2021. https://www.imf.org/-/media/Files/Publications/CR/2021/English/1GEOEA2021001.ashx

40 WORLD BANK, Georgia overview, 2023. https://www.worldbank.org/en/country/georgia/overview

41 EUROSTAT, Key figures for European neighbourhood East countries, 2023. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Key_figures_for_European_Neighbourhood_East_countries

although inflation and public debt require further attention. Overall, the data confirm Georgia's significant progress towards sustainable development, with the challenge of maintaining a balance between economic growth, social equity, and environmental responsibility remaining central.

One of the key obstacles to sustainable growth is corruption, which continues to pose a serious challenge in many countries of the region (Table 3).

Table 3. Corruption in Eastern European countries and its impact on long-term economic growth

Country	Corruption Perceptions Index (CPI)
Poland	56
Romania	45
Bulgaria	43
Hungary	44
Georgia	52
Ukraine	33

[Source: compiled by the author based on [42]]

The Corruption Perceptions Index (CPI) reveals significant differences in corruption levels across Eastern European countries and neighbouring regions. Poland and Georgia show relatively high scores (56 and 52, respectively), reflecting progress in anti-corruption efforts and improved institutional environments. Conversely, Ukraine, Bulgaria, and Hungary register lower scores (ranging from 33 to 44), indicating ongoing serious corruption issues that hinder economic development and the implementation of sustainable reforms. These figures highlight that despite reform efforts, corruption remains one of the main barriers to improving governance quality and ensuring long-term stability in the region.

Corruption undermines the efficiency of public institutions and limits the capacity to implement necessary reforms. In countries with high levels of corruption, difficulties arise in attracting investment, improving the business climate, and building trust in government institutions.[43] Institutional instability – caused

42 A., OCOLIȘANU, G., DOBROTĂ, and D. DOBROTĂ, The Effects of public investment on sustainable economic growth: Empirical evidence from emerging countries in Central and Eastern Europe. *Sustainability*, 14(14), 2022, 8721. https://doi.org/10.3390/su14148721

43 B. MATKARIMOV, A. BARLYBAYEV, and D. KARIMOV, Enhancing analytical precision in company earnings reports through neurofuzzy system development: A comprehensive investigation. *Journal of Electrical and Computer Engineering*, 2024, 2024, 8515203. https://doi.org/10.1155/2024/8515203

by the lack of judicial independence, poor-quality public administration, and lack of transparency – also negatively affects the countries' ability to implement long-term strategies effectively. Despite external support and ongoing reforms, corruption and institutional weakness frequently remain serious impediments to sustainable economic growth.[44]

The demographic crisis is another significant obstacle to sustainable development in Eastern Europe. Ageing populations and low birth rates are leading to labour shortages, which can substantially slow economic growth. In 2020, the average fertility rate in the region was only 1.5-1.6 children per woman, well below the replacement level of 2.1. In countries with the most acute demographic problems, such as Bulgaria and Ukraine, the ageing process is especially rapid, with the proportion of people over 65 exceeding 20% (as of 2020). Young people, facing limited opportunities at home, often seek employment abroad, resulting in migration and a decline in the number of qualified professionals. In 2019, more than 3 million people left Eastern Europe in search of work, representing a substantial share of the working-age population. This has caused labour shortages and increased pressure on pension and social systems. In countries with the most pronounced demographic challenges, such as Romania and Ukraine, the burden on pension funds has increased by 15-20% over the past decade. Addressing this issue requires a comprehensive approach, including measures to attract migrants, improve living conditions for youth, and promote family values – making it a long-term challenge for the region.[45]

No less significant challenges for the countries of Eastern Europe are posed by external factors, including geopolitical instability, military actions in Ukraine, and economic sanctions. The situation on the international stage – including strained relations with neighbouring states and overall instability – can exert a seriously negative impact on the region's economy. Moreover, sanctions targeting countries such as Russia, Belarus, and Iran limit their trade opportunities and

44 S. AL-JUNDI, A.,SHUHAIBER, and S.S. AL-EMARA, The effect of political instability and institutional weakness on administrative corruption. *Contemporary Economics*, 16(2), 2022, 168-181. https://doi.org/10.5709/ce.1897-9254.475

45 M. DUDEK, and T. WOJEWODZIC, Does a Demographic crisis threaten European and Polish agriculture? *Countryside and Agriculture*, 1 (190), 2021, 97-117. https://doi.org/10.53098/wir012021/05

hinder economic development. Major external actors such as the European Union and Russia also exert considerable influence, with their economic policies and political decisions affecting the business environment and the development of individual sectors in Eastern Europe. For instance, Russia's aggressive foreign policy or uncertainty in the EU's positions may generate economic instability and complicate the achievement of sustainable growth.[46]

Achieving sustainable growth in the countries of Eastern Europe is hampered by a multitude of internal and external challenges. To effectively combat corruption, address demographic issues, and withstand external economic and geopolitical pressures, not only are active measures by national authorities required, but also close cooperation with international partners and the business community.

The countries of Eastern Europe, which have undergone significant transformations following the end of the socialist era and their integration into the European Union, show varying degrees of success in implementing sustainable economic growth strategies. Comparative analysis of these countries helps to identify both successful cases and those that encounter a range of difficulties on their path toward sustainable development.

Some countries in the region have achieved more pronounced and stable economic growth due to comprehensive reforms, successful integration into international structures, and effective attraction of external resources. For example, Poland serves as a vivid example of a successful transition from a planned economy to a market-based model. Thanks to well-considered policies and the targeted use of EU funds, the country significantly improved its infrastructure, developed industry, and raised the standard of living. Political stability, a relatively low level of corruption (Poland ranked 47th in the Transparency International Corruption Perceptions Index in 2023), and active cooperation with the European Union contributed to the successful implementation of sustainable economic strategies. As a result, in 2023, the country's GDP grew by 2.8%, and unemploy-

46 K. KHAN, A. KHURSHID, and J. CIFUENTES-FAURA, Investigating the relationship between geopolitical risks and economic security: Empirical evidence from central and Eastern European countries. *Resources Policy*, 85, 2023, 103872. https://doi.org/10.1016/j.resourpol.2023.103872

ment dropped to 2.9%, reflecting notable achievements in social development.[47]

Bulgaria, despite being an EU member state, faces a number of serious problems that hinder sustainable economic growth. One of the key barriers to development is the high level of corruption (72nd place in the 2023 Corruption Perceptions Index), which permeates various spheres – from public administration to business. Although the country has made certain gains in the tourism sector (revenue from tourism in 2023 amounted to approximately EUR 5.1 billion), the problems in the judicial system remain significant. The poverty rate also remains high – around 20% of the population lived below the national poverty line in 2023.[48]

Romania faces several structural challenges that impede the full realisation of its economic potential. Although the country has succeeded in sectors such as information technology, becoming one of Europe's leading IT hubs, problems in the legal and judicial systems persist (63rd place in the 2023 Corruption Perceptions Index). In 2023, Romania's GDP grew by 2.2%, but the poverty rate remained relatively high at 16.1%. Furthermore, the unemployment rate stood at 5.6%, which is above the levels observed in more economically stable countries in the region.[49]

Georgia represents a notable case: despite successful reforms aimed at market liberalisation and improving the business climate (the country held a high position – 7th – in the Doing Business ranking until its discontinuation), it continues to face serious challenges related to social justice. In 2023, Georgia's GDP grew by 7.5%, but the poverty rate remained fairly high at 11.8%. Unemployment stood at 13.7%, indicating the need to intensify efforts in job creation and

47 M.B. PIETRZAK, B. IGLIŃSKI, W. KUJAWSKI, and P. IWAŃSKI, Energy transition in Poland – Assessment of the renewable energy sector. *Energies*, 14(8), 2021., 2046. https://doi.org/10.3390/en14082046

48 O. TANKOVSKY, and V. ENDRODI-KOVACS, The economic integration maturity of Romania and Bulgaria. In A. Horobet, L. Belascu, P. Polychronidou, A. Karasavvoglou (Eds.), *Global, Regional and Local Perspectives on the Economies of Southeastern Europe*. Cham: Springer, 2021, 91-104. https://doi.org/10.1007/978-3-030-57953-1_6

49 I. BOSTAN, A.A. MOROŞAN, C.V. HAPENCIUC, P. STANCIU, and I. CONDRATOV, Are structural funds a real solution for regional development in the European union? A study on the northeast region of Romania. *Journal of Risk and Financial Management*, 15(6), 2022, 232. https://doi.org/10.3390/jrfm15060232

the development of social policy.[50]

Ukraine faces serious challenges linked to political instability, geopolitical conflicts, and high levels of corruption (the country ranked 104th in the 2023 Corruption Perceptions Index). Despite numerous reform efforts, economic growth in Ukraine remains unstable – in 2023, GDP grew by approximately 5% after a decline in 2022. The poverty rate exceeded 24%, and unemployment remained at around 19%. Political instability and external threats such as the conflict with Russia continue to complicate the implementation of reforms.[51]

Differences in the success of Eastern European countries in implementing sustainable strategies can be explained by several factors. The maturity of institutions and the degree of corruption play a key role in determining the effectiveness of economic reforms. Generally, countries with strong institutional structures and low levels of corruption achieve more stable and sustainable economic performance.

Global integration and participation in international economic organisations, such as the European Union, significantly facilitate the accelerated implementation of sustainable economic strategies.[52] Countries like Poland, which have effectively utilised EU assistance and invested in infrastructure and human capital, have achieved noticeable success.

In addition, the geopolitical environment has a considerable impact. Countries such as Ukraine and Georgia face external threats and political instability, which hinder the implementation of sustainable strategies. Foreign policy factors, including sanctions and geopolitical pressure, have a strong influence on economic development, especially in conflict-prone regions.

Comparative analysis of Eastern European countries shows that the successful implementation of sustainable economic strategies depends on numerous

---

50 M. KIM, and J.S. MAH, Market liberalization and Georgia's de facto industrial policy. *Perspectives on Global Development and Technology*, 23(5-6), 2024, 333-355. https://doi.org/10.1163/15691497-12341689

51 Y. ROMANOVSKA, G. KOZACHENKO, Y. POGORELOV, O. POMAZUN, and K. Redko, Problems of development of economic security in Ukraine: challenges and opportunities. *Financial and Credit Activity: Problems of Theory and Practice*, 5(46), 2022, 249-257 https://doi.org/10.55643/fcaptp.5.46.2022.3906

52 S. STEFANOV, Construction contracts expenses and revenues reporting. *IOP Conference Series: Materials Science and Engineering*, 951(1), 2020, 012029. https://doi.org/10.1088/1757-899X/951/1/012029

factors, including institutional maturity, corruption levels, integration into external economic structures, and political stability. Countries that have managed to establish strong and resilient institutions, build effective cooperation with international partners, and address key social issues have achieved significant economic progress. Meanwhile, states facing internal and external challenges continue to experience difficulties in realising their strategies, hindering the attainment of sustainable and balanced development.

To achieve sustainable economic growth and improve quality of life in Eastern European countries, a comprehensive approach is required – one that addresses current challenges and creates favourable conditions for development. Key areas for future progress include environmental transformation, strengthening social policy, and improving the institutional environment.

One of the priority tasks for Eastern European countries is the development of sustainable and environmentally friendly technologies. While some states are already actively promoting renewable energy and implementing green technologies, in others this process is progressing more slowly. To accelerate the transition to environmentally sustainable development, it is necessary to modernise energy infrastructure by increasing investment in renewable sources such as solar and wind power, and to enhance the energy efficiency of the industrial sector. This will not only reduce the carbon footprint but also create new jobs in the green energy sector. Furthermore, waste management systems must be developed by implementing efficient recycling technologies. Increasing recycling rates and reducing the volume of waste will improve environmental conditions and create opportunities for new industries, such as plastic and secondary resource processing. It is also important to support environmentally oriented agriculture by introducing sustainable methods, including organic farming and eco-friendly plant protection practices, which will improve the resilience of the agricultural sector.

To improve quality of life and reduce social inequality in the region's countries, efforts must be focused on reforming healthcare, education, and social protection systems.[53] It is vital to continue investing in the development of edu-

53 A. SILAGADZE, G. GAGANIDZE, T. ZUBIASHVILI, and T. ATANELISHVILI, Cryptocurrency regulation in post-Soviet countries: Balancing global practices and local specifics. *Scientific Bulletin of Mukachevo State University. Series "Economics"*, 12(1), 2025, 103-117. https://doi.org/10.52566/msu-econ1.2025.103

cational institutions and the healthcare sector. Improving the quality of education – particularly in technology and science – will open new prospects for young people and increase social mobility. Ensuring accessible healthcare will guarantee equal opportunities for medical assistance for all citizens. Reducing poverty and the social gap through poverty alleviation programmes, increases in minimum wages, and improved working conditions will represent a significant step forward. Expanding social support for vulnerable groups and improving housing conditions will also contribute to strengthening social stability. Moreover, launching family support programmes and actively promoting employment initiatives, including for young and elderly people, will help reduce social tensions and increase social cohesion.

To successfully carry out economic and social reforms in Eastern European countries, it is necessary to enhance the institutional environment and increase the transparency and effectiveness of government bodies. One of the key areas is the fight against corruption. Reducing corruption plays an essential role in improving the business climate and strengthening public trust in state institutions.[54] This requires stricter accountability measures for corruption-related offences, stronger oversight of government activity, and the establishment of independent anti-corruption bodies. The judiciary must also be reformed to increase its independence, transparency, and effectiveness, which will strengthen confidence in the legal system and ensure fair dispute resolution for both businesses and citizens.[55] An important step is the improvement of public administration through the digitalisation of services, optimisation of public procurement systems, and rational use of budgetary funds. These measures will enhance trust in the government and enable more efficient use of public resources.

To ensure sustainable economic development in Eastern European countries, it is important to continue active cooperation with international organisa-

54 P. M. PANTEGHINI, The capital structure of multinational companies under tax competition. *International Tax and Public Finance*, 16(1), 2009, 59–81. https://doi.org/10.1007/s10797-007-9055-7

55 V. PAPAVA, and V. MAISAIA, On economic security under confrontational globalization and the main concepts of geo-economic warfare. *Bulletin of the Georgian National Academy of Sciences*, 17(3), 2024, 116-120. https://doi.org/10.2139/ssrn.4608421

tions such as the European Union[56], the World Bank[57], and other financial institutions. This cooperation should include not only financial support but also the exchange of experience and knowledge in the areas of sustainable development, environmental protection, innovation, and social welfare. Engagement with international partners will help to strengthen external economic and political stability, thereby creating favourable conditions for effective internal development.

4. Discussion

The analysis of the data obtained suggests that the countries of Eastern Europe which have most effectively integrated into the European Union and capitalised on its resources have achieved the greatest success in sustainable growth. In particular, Poland has made significant progress in modernising infrastructure and developing technology through the targeted use of EU funds. Reforms in the fields of education and entrepreneurship have strengthened the internal economy and enhanced its competitiveness. This confirms that a well-designed strategy, combined with international support, contributes significantly to achieving sustainable economic development.

This issue was also examined by Vuković et al.[58], whose findings confirmed that sustainable economic growth in Eastern European countries was driven by structural reforms, active integration into the global economy, and improved access to investment resources. Positive changes were reflected in GDP growth, poverty reduction, and infrastructure modernisation. However, the study also identified serious problems such as income disparities, demographic decline, and a high dependence on external economic factors.

The study by Bostan et al.[59] likewise highlights the substantial impact of external factors on the development of the region's countries. Global economic

56 EUROPEAN UNION, European union official website, 2025. https://european-union.europa.eu/index_en

57 INTERNATIONAL MONETARY FUND, International monetary fund official website, 2025. https://www.imf.org/en/Home

58 B., VUKOVIĆ, T., TICA, and D. JAKSIĆ, Sustainable growth rate analysis in Eastern European companies. *Sustainability*, 14(17), 2022, 10731. https://doi.org/10.3390/su141710731

59 I. BOSTAN, C. TOMA, G. AEVOAE, I.B. ROBU, D.N. MARDIROS, and Ș.C. TOPLICEANU, Effects of internal and external factors on economic growth in emerging economies: Evidence from CEE countries. *Eastern European Economics*, 61(1), 2023, 66-85. https://doi.org/10.1080/00128775.2022.2109489

crises, fluctuations in energy prices, and geopolitical instability have had a marked effect on the economic dynamics of Eastern Europe. Although foreign investment has contributed to economic growth, the high degree of dependence on external trade has left these economies vulnerable to external shocks. Sanctions, political tensions, and changes in global demand have often exacerbated existing internal economic challenges.[60]

It should be emphasised that the pace of sustainable economic growth in Eastern European countries has varied considerably depending on the depth of reforms implemented and the effectiveness of government institutions. Countries with high levels of administrative transparency and strong support for small and medium-sized enterprises have generally demonstrated more stable and predictable results.[61,62] By contrast, those countries where reforms have progressed slowly or been hindered by systemic corruption have encountered difficulties in achieving long-term and balanced development.

While some countries have registered notable successes, others continue to face serious obstacles that slow their development. As the analysis shows, Romania and Bulgaria – despite their EU membership and the implementation of economic reforms – still struggle with high levels of corruption and weak state institutions. These factors not only limit their potential for economic growth but also undermine the foundations of long-term stability. Social challenges are particularly pronounced – the persistently high poverty levels indicate that economic policies have been insufficiently effective in improving living standards.[63] Despite some success in infrastructure modernisation and attracting investment, corruption and social inequality remain key barriers to sustainable development.

60 R. MINIACI, M. L. PARISI, and P. M. PANTEGHINI, Debt shifting in Europe. *International Tax and Public Finance*, 21(3), 2014, 397–435. https://doi.org/10.1007/s10797-012-9266-4

61 A. DEMI, S. XHAFERRI, S. UKU, S. SHAHINI, and A. LUSHI, The impact of fiscal policies on Albanian economic growth: The case of value-added tax. *Journal of Governance and Regulation*, 10(4 Special issue), 2021, 311–325. https://doi.org/10.22495/JGRV10I4SIART11

62 G. ARACHI, V. BUCCI, E. LONGOBARDI, P. M. PANTEGHINI, M. L. PARISI, S. PELLEGRINO, and A. ZANARDI, Fiscal reforms during fiscal consolidation: The case of Italy. *FinanzArchiv*, 68(4), 2012, 445–465. https://doi.org/10.1628/001522112X659574

63 M. KNAPIK, Analysis of water leaks and savings strategies in commercial buildings and the impact of LEED certification on water system operating cost. *Zeszyty Naukowe SGSP*, 1(95), 2025, 41–58. https://doi.org/10.5604/01.3001.0055.2863

Unlike the author study, Bahri et al.[64] stress that corruption and institutional instability continue to pose significant obstacles to sustainable economic development in Eastern Europe. These factors erode investor confidence, increase the cost of doing business, and hinder the implementation of necessary reforms. Countries with high levels of corruption often experience capital flight and a slowdown in economic dynamics.

The study by Adanma and Ogunbiyi[65] found that international support – including assistance from the European Union, the International Monetary Fund, and the World Bank – has played a significant role in strengthening the region's economic resilience. Financial programmes and technical assistance have contributed to institutional modernisation and the implementation of structural reforms. However, the effectiveness of this support largely depends on the political will and readiness for change within the beneficiary countries themselves.

These findings support the conclusions mentioned above, showing a clear correlation between the level of corruption and the slowdown in economic growth. The higher the degree of institutional instability, the lower the level of investment activity and economic performance.[66,67] This underlines the importance of large-scale reforms to create favourable conditions for sustainable development.

The analysis of the environmental component of Eastern European strategies revealed that the implementation of sustainable environmental technologies largely depends on political will and financial resources. Poland is actively developing renewable energy sources and aiming to reduce carbon emissions, having

64 M. BAHRI, O. SAKKA, and R. KALLAL, The impact of corruption on the export intensity of SMEs in Tunisia: moderating effects of political instability and regulatory obstacles. *Journal of Entrepreneurship in Emerging Economies*, 13(5), 2021, 1134-1151. https://doi.org/10.1108/JEEE-03-2020-0055

65 U.M., ADANMA, and E.O. OGUNBIYI, A comparative review of global environmental policies for promoting sustainable development and economic growth. *International Journal of Applied Research in Social Sciences*, 6(5), 202495, 4-977. https://doi.org/10.51594/ijarss.v6i5.1147

66 M. ALIYEVA, L. HUSEYNOVA, and G. AGABEKOVA, The role of investment in the development of smart agricultural technologies in megacities. *Scientific Horizons*, 28(6), 2025, 150–164. https://doi.org/10.48077/scihor6.2025.150

67 T. TOKHTAMYSH, S. HLIBKO, Y. AKHMEDYAROV, and T. ISMAILOV, Eco-friendly dairy products: International context and prospects. In: *Globalization, Global Security, and New International Realities for Modern Democracies*. IGI Global, 2025, 403–431. https://doi.org/10.4018/979-8-3373-1355-9.ch016

achieved a 13% share of renewables in its energy mix by 2020 – a noteworthy figure. At the same time, countries such as Bulgaria remain heavily reliant on coal-fired energy, which causes serious environmental issues. For these countries to shift to cleaner technologies, substantial investment and comprehensive reforms in the energy sector are required.

According to Wang et al.[68], environmental technologies are playing an increasingly important role in ensuring sustainable growth in Eastern Europe, particularly in terms of reducing environmental damage and increasing energy efficiency. The development of renewable energy sources, such as solar and wind power, reduces dependence on traditional hydrocarbons. Moreover, the growth of "green" technologies fosters job creation and the expansion of environmentally friendly industries.[69]

In turn, Strielkowski et al.[70] concluded that energy sector diversification plays a crucial role in ensuring sustainable development in the region. The active development of alternative energy sources and improvements in energy efficiency help to reduce reliance on external energy shocks and political risks. In addition, this supports the reduction of carbon emissions, which is an essential step toward meeting climate goals and fulfilling international obligations.[71]

These data are consistent with the arguments presented in the previous section, confirming the importance of environmental technology in achieving long-term economic growth. The development of renewable energy not only mitigates environmental harm but also creates new opportunities for the

---

68 R. WANG, M. USMAN, M., RADULESCU, J. CIFUENTES-FAURA, and D. BALSALOBRE-LORENTE, Achieving ecological sustainability through technological innovations, financial development, foreign direct investment, and energy consumption in developing European countries. *Gondwana Research*, 119, 2023, 138-152. https://doi.org/10.1016/j.gr.2023.02.023

69 O. DENISSOVA, M. KOZLOVA, M. RAKHIMBERDINOVA, Y. VARAVIN, and M. ORDABAYEVA, International experience in the development of green economy. *Journal of Environmental Management and Tourism*, 9(3), 2018, 564–575. https://doi.org/10.14505/jemt.v9.3(27).16

70 W. STRIELKOWSKI, L. CIVÍN, E. TARKHANOVA, M. TVARONAVIČIENĖ, and Y. PETRENKO, Renewable energy in the sustainable development of electrical power sector: A review. *Energies*, 14(24), 2021, 8240. https://doi.org/10.3390/en14248240

71 I. MIKHNO, N. IHNATENKO, O. CHERNIAIEV, V. VYNOGRADNYA, D. ATSTAJA, and V. KOVAL, Construction waste recycling in the circular economy model. *IOP Conference Series: Earth and Environmental Science*, 1126(1), 2023, 012003. https://doi.org/10.1088/1755-1315/1126/1/012003

modernisation of the energy sector.[72,73] This, in turn, fosters sustainable development and reduces dependence on unstable and costly traditional energy sources.

Social factors also play a crucial role in the sustainable growth strategies of the region's countries. In Poland, substantial investments in education and healthcare have improved the quality of life and social mobility. By contrast, in Romania and Bulgaria, poverty levels remain high – with around 25% of the population living below the poverty line – indicating that insufficient measures have been taken to address social issues. This casts doubt on the effectiveness of economic strategies focused primarily on infrastructure development and foreign investment, and highlights the need for a comprehensive approach that considers both social and economic challenges.[74]

Kamenova et al.[75] also conducted a study which confirmed that social investment is essential for improving living standards, as it targets the development of education, healthcare, and social protection systems. Such investments not only enhance "citizens" wellbeing but also strengthen human capital – a key driver of sustainable economic development. Investment in social programmes promotes more equitable income distribution and helps reduce social inequality.

Halkos and Gkampoura[76] likewise found that social challenges – such as unemployment, poverty, and low levels of education – significantly hinder economic development, slowing growth and intensifying social tensions. These problems contribute to declining public health, increased crime, and reduced la-

72 S. BABAYEVA, N. ADILOVA, E. GOJAEVA, and A. PASHAYEVA, Green innovation as a factor of economic growth. *Lecture Notes in Networks and Systems*, 1251 LNNS, 2024, 523–531. https://doi.org/10.1007/978-3-031-81567-6_60

73 E. GOJAEVA, I. S. VELI, A. P., and I. M. S., Green and sustainable financing as a promising mechanism for attracting foreign investment. *Lecture Notes in Networks and Systems*, 1251 LNNS, 2024, 423–430. https://doi.org/10.1007/978-3-031-81567-6_49

74 J. TETA and E. XHAFAKA, The qualitative impact of foreign direct investment in the Albanian clothing industry. *Apuntes del Cenes*, 43(78), 2024, 51–68. https://doi.org/10.19053/uptc.01203053.v43.n78.2024.17251

75 M. KAMENOVA, G. ZHANTELEUOVA, B. MAIDANKYZY, G. LESBAYEVA, M. AMIROVA, and F. SHULENBAYEVA, Social investing as tool to improve the quality of life. Implications for the sustainable development and environmental vulnerability. *Journal of Environmental Management and Tourism*, 14(3), 2023, 842-855. http://dx.doi.org/10.14505/jemt.14.3(67).22

76 G.E. HALKOS, and E.C. GKAMPOURA, Evaluating the effect of economic crisis on energy poverty in Europe. *Renewable and Sustainable Energy Reviews*, 144, 2021, 110981. https://doi.org/10.1016/j.rser.2021.110981

bour productivity. To address them effectively, a comprehensive approach involving both public and private investment in the social sphere is required.

A comparison of the findings reveals a direct correlation between the level of social investment and improvements in the quality of life. The more resources are directed towards healthcare, education, and social protection, the higher the general level of wellbeing and social stability.[77] In turn, these factors create favourable conditions for stable economic growth and greater labour productivity.

An analysis of economic resilience shows that countries such as Hungary and Georgia have taken significant measures to support small and medium-sized enterprises (SMEs), which has facilitated job creation and strengthened internal economic structures. In Hungary, SMEs account for more than 60% of all businesses, reflecting the development of the private sector. In Georgia, administrative reforms, simplified tax procedures, and improvements in the business climate have increased the number of SMEs. These changes have enhanced competitiveness and accelerated economic growth, although issues of corruption and social inequality remain pressing.

Wu et al.[78] concluded that reforms supporting SMEs play a key role in stimulating economic growth in Eastern Europe. Simplifying bureaucratic procedures, reducing tax burdens, and improving access to finance foster a more favourable environment for private sector development. This not only increases the number of new businesses but also boosts employment and innovation in the region.

Kumhof and Noone[79] found that legal stability is a critical factor in ensuring the region's economic resilience, as it builds trust among investors and entrepreneurs. A reliable legal system protects business interests, reduces corruption

77 Z. B. UMBETBAYEVA, S. ZH. SULEIMENOVA, G. G. NURAKHMETOVA, S. A. SAIMOVA, and D. BAITUKAYEVA, The Vienna Convention for the protection of the ozone layer and its role in promoting environmental sustainability and implementation in the national legislations of participating states. *Rivista di Studi sulla Sostenibilita*, 13(1), 2023, 313–330. https://doi.org/10.3280/RISS2023-001-S1020

78 S.H. WU, F.J. LIN, and C. PERNG, The affecting factors of small and medium enterprise performance. *Journal of Business Research*, 143, 2022, 94-104. https://doi.org/10.1016/j.jbusres.2022.01.025

79 M. KUMHOF, and C. NOONE, Central bank digital currencies – Design principles for financial stability. *Economic Analysis and Policy*, 71, 2021, 553-572. https://doi.org/10.1016/j.eap.2021.06.012

risks, and safeguards property rights. Countries with stable legal frameworks exhibit higher economic growth rates, as their economies are better equipped to withstand internal and external shocks.

The research findings suggest that reforms aimed at supporting SMEs significantly contribute to accelerating economic growth. Reducing administrative barriers and streamlining business processes encourages not only the creation of new enterprises but also the expansion of existing ones.[80] These changes foster an enabling entrepreneurial environment, promoting job creation and boosting innovation across the region.

However, not all countries in the region can boast similar achievements. Ukraine, despite its reform efforts, continues to struggle with political instability and high levels of corruption. These challenges constrain the effective implementation of economic strategies and lead to unpredictability in economic development. In 2020, Ukraine's GDP contracted by 4.4%, a decline directly linked to political crises and economic instability. These circumstances demonstrate that sustainable development requires not only economic reforms, but also the strengthening of political institutions and an active fight against corruption – both of which are foundational to long-term growth and regional stability.

5. Conclusions

The study has analysed the key economic development strategies of Eastern European countries and their impact on sustainable growth. The findings indicate that stable economic growth largely depends on the effectiveness of structural reforms, the scale of international investment, and the level of institutional resilience. In particular, Poland's success has been underpinned by actively attracting EU funds – around EUR100 billion – accompanied by GDP growth of 4.5% and one of the region's lowest unemployment rates. However, comparing data across countries is complicated by differences in economic scale, political conditions, and access to European support mechanisms.

Romania and Bulgaria have achieved moderate results but continue to face systemic obstacles such as corruption and weak legal institutions. Nonetheless,

80 A. HAJIYEVA, A. HAJIYEVA, K. KHUDAVERDIYEVA, and N. ATAKISHIYEVA, Small and medium-sized businesses as a factor influencing the level of employment. *Australasian Accounting, Business and Finance Journal*, 19(2), 2025, 120–143. https://doi.org/10.14453/aabfj.v19i2.07

Romania has attracted over EUR 5 billion to its IT sector and secured a strong position in this area. Meanwhile, Bulgaria remains heavily reliant on tourism, which limits the diversification of its economy. The reliability of such comparisons is constrained by structural economic differences and disparities in access to investment flows.

Georgia, not being an EU member, has achieved GDP growth of 5.0% and secured a high position in the Doing Business ranking, yet its high poverty rate (21.6%) indicates low social resilience. Ukraine, despite external challenges, is implementing institutional reforms with the support of international organisations, though accurate assessment of its progress is difficult due to ongoing military conflict.

Thus, when assessing sustainable growth, it is important to consider not only quantitative data, but also qualitative factors – institutional foundations, political will, and the degree of social integration. Countries should be compared with these characteristics in mind, and conclusions about strategy should be drawn in the context of each country's specific circumstances.

A limitation of this study is the lack of in-depth analysis of domestic political stability and its direct impact on economic strategies in each of the countries reviewed. Future research would benefit from exploring the influence of demographic changes and migration processes on sustainable economic development in Eastern Europe.

Olha Khrystenko
PhD, Associate Professor at the Department of Business Economics –
Mykolaiv National Agrarian University
olhakhrystenko74@gmail.com
Tetiana Oliinyk
PhD, Associate Professor at the Department of Business Economics –
Mykolaiv National Agrarian University
t.oliinyk4@outlook.com
Ganna Tabatskova
PhD, Associate Professor at the Department of Business Economics –
Mykolaiv National Agrarian University
g-tabatskova@hotmail.com

Monitoring successful cases of relocated enterprises and the contribution to regional development

Abstract

The aim of this study was to analyse the socio-economic contribution of successfully relocated enterprises to the development of host regions in Ukraine and EU countries. The methodology was based on an applied study of cases of Ukrainian and European enterprises that changed the location of the operations. Relocation under wartime challenges ensured business survival and had a multiplier effect for communities. The company "Kulinichi" moved production from Kharkiv to Lviv region, invested EUR 20 million in a bakery complex, created more than 3,000 jobs (500 – for internally displaced persons); revenue increased from UAH 113.8 million in 2022 to UAH 214.3 million in 2024. The company "Akvaizol" moved from Kharkiv to Kalush, built a plant on an abandoned site, created 100 jobs; revenue in 2023 amounted to UAH 901 million, assets in 2024 – UAH 1.283 billion. The company "Chumak", after losing its plant in Kakhovka, placed production in several regions and initiated the construction of a plant in Odesa region (potential for 5,000 jobs); revenue increased from UAH 573.3 million in 2022 to UAH 1.36 billion in 2024. The joint-stock company "Ukrainian Energy Machines" created branches in Lviv, Zakarpattia and Chernivtsi re-

gions to reduce risks. In the EU, relocation was carried out for economic, logistical and regulatory reasons: the companies JPMorgan, Goldman Sachs, Citigroup, Bank of America and Morgan Stanley relocated part of the staff and assets to Frankfurt, Paris, Dublin, and Madrid to maintain access to the EU internal market. The company Bosch implemented a strategy of moving production closer to the consumer, expanding it in Hungary. The practical significance of the study lies in the use of the results to improve the policy of supporting relocated business and to develop indicators of its socio-economic impact.

Keywords: Business Relocation – Regional Development – Economic Impact – Social Effect – Internally Displaced Business

1. Introduction

The need for an in-depth study of business relocation in Ukraine arose as a result of large-scale structural changes caused by the full-scale war. The mass relocation of manufacturing, trade and service enterprises to safer regions became not only a forced step to preserve economic activity, but also a new factor in the transformation of territorial development. At the same time, despite the introduction of state support programmes for displaced companies, there is still a lack of systematised knowledge of which business transfer models proved effective, under what conditions relocation produced a positive effect not only for the enterprise, but also for the host community. In the article by Kliuchnyk et al.[1], the transformation of the system of public administration in territorial communities of Ukraine under martial law and post-war recovery is examined. The authors emphasised that effective management at the local level became critically important for the mobilisation of resources, the prompt adoption of decisions and the implementation of business support programmes, in particular for enterprises that were forced to relocate.

1 A. Kliuchnyk, L. Prohoniuk, N. Galunets, A. Husenko, T. Oliinyk, *Public management and administration in territorial communities of Ukraine during the war and in the post-war period*, in *Economic Affairs*, 2023, Vol. 68, pp. 923-929.

In the context of transformations related to business relocation, Bereza et al.[2] studied the role of economic factors in ensuring the sustainable functioning of enterprises, emphasising the importance of environmental and social aspects for improving financial results, reducing risks and increasing investment attractiveness. The authors noted that such approaches contributed to more efficient use of resources and increased the adaptability of companies to external challenges. In the conditions of spatial reformatting of the business environment caused by wartime threats, the role of adaptive models of economic activity in new territories increases.[3,4] In the conditions of spatial reformatting of the business environment caused by wartime threats, the importance of adaptive models of economic activity in new territories increases. Lavreniuk et al.[5] drew attention to changes in the functioning of the economy of host regions, examining the features of labour migration, demographic shifts and the factors of the formation of new employment centres. The study emphasised that the redistribution of human capital could contribute to the revitalisation of economic life in relatively safe regions, provided there was infrastructural capacity and investment support.

In a situation of forced business relocation, logistical, organisational and financial factors that determine the effectiveness of companies' adaptation to new conditions become important.[6] Barabash et al.[7] analysed the state of

2 Y. BEREZA, B. HNATKIVSKYI, Y. VITKOVSKYI, *The impact of corporate governance on the sustainable development of agricultural enterprises*, in *Actual Problems of Innovative Economy and Law*, 2024, Vol. 6, pp. 66-71.

3 O. MOSKALENKO, A. YELEUSSINOVA, N. PANJIEVA, A. TKACHENKO, O. YAKOVLEV, *Role of Tax and Legal Incentives in Attracting Foreign Capital in the Context of International Investment Policy,* in *International Journal of Accounting and Economics Studies*, 2025, Vol. 12, No. 2, pp. 381–391.

4 A. YARIN, J. PRADO, A. POZO, F. D. CARPIOL, S. PATRICIO, B. SURICHAQUI, *Quality Management and Customer Satisfaction in SMEs in the Textile Industry,* in *Journal of Textile and Apparel, Technology and Management*, 2023, Vol. 12, No. 4, pp. 1–9.

5 YE. POLISHCHUK, A. KORNYLIUK, V. LAVRENIUK, V. HORBOV, *Running a business during wartime: Voice of Ukrainian displaced business*, in *Problems and Perspectives in Management*, 2024, Vol. 22, No. 3, pp. 287-302.

6 O. KRYVORUCHKO, I. DMYTRIIEV, G. POYASNIK, I. SHEVCHENKO, I. LEVCHENKO, *Transport and Logistics Services as a Component of the Transport Complex and Their Quality Management,* in *Problems and Prospects of Development of the Road Transport Complex: Financing, Management, Innovation, Quality, Safety - Integrated Approach*, 2021, Vol. 1, pp. 42–62.

7 O. BARABASH, M. SAMCHENKO, K. DOBKINA, O. ROZGHON, V. OZEL, *The impact of the relocation of enterprises in Ukraine and abroad on the realization of socio-economic, cultural and labour*

implementation of the government relocation programme and identified the key difficulties faced by enterprises during the move: a lack of suitable production premises, problems with the transportation of equipment, and a shortage of qualified personnel in host regions. The authors also noted that relocation contributed to the restoration of economic activity, the preservation of jobs and the formation of new production clusters. In the process of restoring economic activity in new territories, the effectiveness of inter-regional cooperation, institutional coordination and business support is a critical factor.[8,9,10] Horiashchenko et al.[11] analysed the specifics of state regional policy under wartime conditions, focusing on the instruments for supporting territorial development, including the implementation of relocation programmes, the attraction of investments and the creation of conditions for business functioning. The study underlined the importance of an integrated approach oriented towards decentralisation, adaptive planning and human capital development.

In the context of ensuring economic resilience under wartime challenges, financial mechanisms for business support and institutional guarantees of its continuous activity become important. Yakymova[12] (2024) analysed the main directions of state policy on economic recovery, focusing on the importance of public finance, budgetary support and fiscal decentralisation. The author stressed that the effective use of budgetary resources reduced risks for business and crea-

---

rights, in *Social and Legal Studios*, 2023, Vol. 6, No. 4, pp. 28-37.

8 M. GULIYEV, H. MURADOVA, L. HAJIYEVA, L. HUSEYNOVA, *Comparative Analysis of Marketing Strategies of Global Corporations in Industrial and Innovation Clusters in Europe and China,* in *Strategic Change*, 2025, Vol. 34, No. 5, pp. 689–701.

9 I. FEDOTOVA, O. SHERSHENIUK, M. PROKOPENKO, I. BRITCHENKO, R. VAZOV, *Management of a Viable Enterprise on the Basis of the Approach to Management of a «Living» Organization and the Concept of Viable Systems,* in *Problems and Prospects of Development of the Road Transport Complex: Financing, Management, Innovation, Quality, Safety - Integrated Approach, PC Technology Center*, 2021, pp. 63–80.

10 YU. LUPENKO, M. MALIK, O. SHPYKULIAK, *Theoretical and Methodological Basis of Agricultural Cooperation Development in Ukraine,* in *Ekonomika APK*, 2021, Vol. 28, No. 8, pp. 31–39.

11 Yu. Horiashchenko, O. Knysh, Ye. Bendiuh, *Organizational and legal assessment of the impact of relocation on the investment and economic policy of enterprises*, in *Technology Audit and Production Reserves*, 2024, Vol. 1, No. 75, pp. 15-19.

12 L. Yakymova, *Features of business relocation in wartime: Evidence from Ukrainian entrepreneurs*, in *Acta Academiae Beregsasiensis. Economics*, 2024, Vol. 5, No. 5, pp. 214-229.

ted conditions for the revitalisation of entrepreneurial activity. The paper also considered the impact of macro-financial assistance from international partners on the stabilisation of the economic situation. In the process of changing the spatial configuration of business due to wartime threats, mechanisms of regional support, the institutional environment and the economic adaptation of relocated enterprises require attention. Kudyrko and Obozny[13] analysed the organisational aspects of business relocation, indicating the importance of coordination between state authorities, local self-government and entrepreneurs. The authors determined that the implementation of state relocation programmes required a flexible approach, business awareness of the conditions of host regions, as well as infrastructure development.

Under current conditions, business relocation requires the creation of a favourable institutional environment that ensures not only physical movement, but also full-fledged functioning in the new location.[14] Smachylo[15] studied the challenges accompanying the relocation process, in particular the insufficient level of interaction between authorities and enterprises, the lack of financial and logistical resources, as well as limited awareness of relocation opportunities. The author stressed the need for a systematic approach to the implementation of business support policy, including anti-crisis incentives and advisory support. The issue of forming a new economic configuration in safer regions of Ukraine draws attention to the adaptation strategies of business under wartime threat.[16] Polishchuk et al.[17] studied the transformation of the business environment in host communities, focusing on the institutional support for relocation, the creation of a favourable climate for doing business and the role of local authorities. The

---

13 L. P. Kudyrko, V. V Obozny, *Relocation of Ukrainian business in the conditions of war with Russia*, in *Actual Problems of Regional Economy Development*, 2024, Vol. 2, No. 20, pp. 120-130.

14 T. SHTAL, O. PTASHCHENKO, S. RODIONOV, O. KURTSEV, *Implementation of Modern Marketing Tools in Entrepreneurial Activity,* in *Economics of Development*, 2023, Vol. 22, No. 4, pp. 53–63.

15 V. Smachylo, *Impact of the war on entrepreneurship in Ukraine*, in *Studia i Analizy Nauk o Polityce*, 2024, Vol. 1, pp. 9-27.

16 S. STEFANOV, D. GEORGIEVA, J. VASILEV, *Issues in the Disclosure of Financial Information by Multinational Enterprises,* in *TEM Journal*, 2022, Vol. 11, No. 1, pp. 5–12.

17 Ye. Polishchuk, A. Kornyliuk, V. Lavreniuk, V. Horbov, *Running a business during wartime: Voice of Ukrainian displaced business*, in *Problems and Perspectives in Management*, 2024, Vol. 22, No. 3, pp. 287-302.

paper identified the factors that contributed to the successful functioning of relocated enterprises: active participation of communities, the availability of a resource base, effective communication between business and authorities.

At the same time, existing studies do not provide an integrated quantitative assessment of the impact of relocated enterprises on the socio-economic development of host territories: the contribution to employment, tax revenues, the transformation of the regional economy and the creation of clusters has not been traced. This determines the need for further study of the phenomenon on the basis of applied cases and empirical indicators. The aim of this study was to assess the impact of successfully relocated enterprises on the socio-economic development of host regions of Ukraine and the EU. To achieve this aim, the following tasks were set: to analyse applied cases of displaced enterprises from the point of view of the functioning in a new environment; to identify the key effects of business relocation on the economic revitalisation of host regions, in particular through the creation of new jobs, the mobilisation of investment resources, the restoration of infrastructure and the formation of production clusters.

2. Materials and methods

The study was empirical in nature and covered the period 2020-2024, during which the relocation of enterprises became an important tool for adaptation to crisis challenges, in particular military actions in Ukraine and regulatory transformations in the EU. On the basis of content analysis, an empirical study of cases of Ukrainian enterprises that relocated as a result of military actions was carried out. The following companies were included in the analysis: "Kulinichi" (Lviv region), "Akvaizol" (Ivano-Frankivsk region), "Ukrenerhomashyny" (transformed from "Turboatom" and "Elektrovazhmash", Kharkiv region). The company "Chumak" (Odesa region) was also considered. Kharkiv region was chosen as an example of a region with the largest number of relocated enterprises. In particular, the study analysed the scale of investments, the social adaptation of internally displaced persons and the strategic decisions of companies regarding the relocation of production. Kherson region was chosen for analysis due to its agro-industrial specificity and the key role of the company "Chumak" in the restoration of the food sector. On the basis of the study by Pepelia[18], the specifics of the relocation of this enterprise, its impact on food security and the potential for creating new production facilities in Odesa region were examined.

Poltorak et al.[19] focused on the importance of monitoring food security indicators under global crises. This provision could be adapted to the assessment of the impact of relocated enterprises on food supply in the regions where the enterprises restored or created production facilities from scratch. Honcharenko and Honcharenko[20] focused on the impact of mergers and acquisitions of agricultural companies on the development of rural areas, which was relevant in the context of the relocation of agricultural business in Ukraine. The selection of enterprises was based on the availability of accessible information on the scale of relocation, formal signs of the resumption of activity, participation in local economic development and public reporting. The financial results were also analysed, in particular revenue, net profit, assets, and liabilities of the companies Kulinichi, Akvaizol and Chumak for 2022-2024.

A case study approach was also applied to examine the experience of relocating leading transnational companies within the EU. Within the European component of the study, cases of relocation of leading financial institutions after Brexit, in particular JPMorgan, Goldman Sachs and Citigroup, were analysed. The study covered the directions of relocation of staff and assets of these companies to Frankfurt, Paris, Dublin, and Milan. The strategies of Bank of America and Morgan Stanley, which adapted to the new regulatory conditions by creating multifunctional offices within the EU, were also analysed. The choice of these companies was determined by the scale of relocation (an increase in staff by hundreds or thousands of employees), the strategic nature of the relocation and the possibility of comparative analysis in accordance with the approaches presented in the study by Countouris et al.[21], which focused on the impact of regulatory changes on corporate decisions regarding business relocation within the EU. Par-

18 V. Pepelia, "Former "Turboatom" is moving from Kharkiv to western Ukraine," 2024. https://landlord.ua/news/kolyshnij-turboatom-pereyizhdzhaye-z-harkova-na-zahid-ukrayiny/.

19 A. S. Poltorak, A. I. Burkovska, O. A. Khrystenko, A. L. Sukhorukova, I. V. Dovgal, *Monitoring of relationships between indicators of food security of the states*, in *IOP Conference Series: Earth and Environmental Science*, 2023, Vol. 1269, article no. 012001.

20 O. Honcharenko, I. Honcharenko, *Influence of the M&A of agricultural companies on the development of the rural areas*, in *Economic Affairs*, 2023, Vol. 68, pp. 765-771.

ticular attention was paid to the case of the company Bosch. Using Bosch reports[22], the relocation of production within the EU was analysed, which was carried out with the aim of optimising logistical processes and adapting to changes in the regulatory environment. The financial results for 2022-2024 were also analysed to assess the economic efficiency of relocation and to determine its impact on the dynamics of revenue, profitability, and investment activity of the company. A comparative analysis of current trends in enterprise relocation in Ukraine and the EU was carried out using official data[23], which made it possible to compare motivational factors, institutional support mechanisms and the socio-economic results of business relocation in different contexts.

3. Results and discussion

3.1. Empirical analysis of the relocation of Ukrainian enterprises during the wartime period

The social responsibility of relocated enterprises in new regions was a key factor in strengthening the trust of communities and ensuring synergy between business and the local economy[24]. The assessment of enterprise relocation in the context of the full-scale war in Ukraine required a thorough analysis of empirical examples that demonstrated not only business survival, but also its adaptation, scaling, and integration into a new environment. It was precisely such cases as the relocation of the companies "Kulinichi", "Aquaizol" and the transformation of the activities of "Ukrainian Energy Machines", formerly "Turboatom" and "Ukrainian Energy Machines", that were illustrative for studying the trends of

21 N. Countouris, A. Supiot, L. He, S. Borelli, R. Dalmasso, W. Daubler, A. Allamprese, G. Orlandini, A.-S. Cucu, A. Baylos Grau, L. Mathei, B. Hancké, "Relocation: An old problem in search of new answers," 2024. https://www.etui.org/publications/relocation-old-problem-search-new-answers.

22 Bosch, "Annual financial results 2022," 2022. https://www.bosch-middleeast.com/news-and-stories/annual-financial-results-2022/; Bosch, "Bosch annual report 2024," 2024. https://www.bosch.com/company/annual-report/.

23 European Commission, "REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition," 2022. https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_22_3131/IP_22_3131_EN.pdf.

24 I. Zamkova, M. Dubinina, O. Luhova, S. Syrtseva, Y. Cheban, T. Kuchmiiova, *Corporate social responsibility of agricultural companies of Ukraine under martial law*, in *Research for Rural Development*, 2024, Vol. 39, pp. 220-226.

the spatial restructuring of the national economy, since these activities made it possible to illustrate the dynamics of changes caused by security threats. A similar example of adaptation was also the company "Chumak", which moved production from the occupied Kakhovka to safer regions and planned the construction of a new plant in Odesa region. The availability of effective monitoring mechanisms made it possible to track the real contribution of relocated enterprises to the processes of socio-economic recovery and adaptation of territorial communities[25].

Wartime challenges made flexible and adaptive business models relevant, among which relocated enterprises played the role of drivers of circular transformations and of the recovery of the economy at the regional level[26]. One of the most representative examples of the relocation of a large industrial enterprise from Kharkiv was the change in the geography of the activities of the company "Kulinichi" with the transfer of its operations to Lviv region. The enterprise, which had operated since 1995 and had developed production infrastructure in Kharkiv, Kyiv and Poltava regions, in 2022 began the construction of a new bakery complex within the Obroshyno territorial community. This facility became the first similar production since the 1970s to be opened in Lviv region, as well as the largest project in the bakery sector implemented in western Ukraine under the conditions of full-scale war. The reason for relocation was the large-scale damage to the main production site in Kharkiv caused by artillery shelling. Within the framework of the government programme for the relocation of business introduced in March 2022, the company moved part of its capacities from the territory of active hostilities[27].

Investments in the construction of the new plant amounted to EUR 20 million. The project envisaged the creation of eight production lines with a total

25 V. SHEBANIN, O. SHEBANINA, I. KORMYSHKINA, G. RESHETILOV, I. KORMYSHKIN, *Development of monitoring and evaluation mechanisms for the efficiency of the management system for the comprehensive recovery of territorial communities*, in *Scientific Bulletin of Mukachevo State University. Series "Economics"*, 2024, Vol. 11, No. 4, pp. 147-159.

26 O. DOVGAL, N. POTRYVAIEVA, O. BILICHENKO, V. KUZOMA, *Circular economy development in the context of war: Global challenges*, in *Revista Interdisciplinar de Ciencia Aplicada*, 2024, Vol. 8, No. 13.

27 Assembly, "Kulinichi" are going to Lviv. What does this indicate and what can be expected in the future," 2022. https://assembly.org.ua/kulinichi-zalishayut-kharkiv-yak-cze-vpline-na-umovi-praczi-ta-pro-shho-svidchit-v-perspektivi/.

capacity of up to 150 tonnes of bakery products per day. A special feature of production was the use of freezing of products with the use of high-tech compressor equipment, which ensured the long-term preservation of quality and logistics over long distances. Additional technological equipment was supplied from Slovenia, Germany, and Austria. To meet safety requirements, a bomb shelter for personnel was provided at the enterprise. The expected economic effect for the region was significant: it was planned to create about 3,000 jobs, of which 500 – for IDPs from Kharkiv and 2,500 – for local residents. In parallel with the launch of the main production, it was planned to open about 200 branded shops with round-the-clock service in various cities of Lviv region, which would contribute to the growth of retail trade and to strengthening the economic activity of the region. All contracting construction work was carried out by Lviv companies, which additionally stimulated the development of local business[28].

The financial results and economic analysis of the impact of the relocation of the company "Kulinichi" for 2022-2024 indicated noticeable development dynamics directly related to the restoration and expansion of activities after the transfer of production capacities. After relocation to Lviv region, the enterprise was able to adapt quickly to the new conditions, which was reflected in the growth of revenue from UAH 113.8 million in 2022 to UAH 135.1 million in 2023 and the subsequent jump to UAH 214.3 million in 2024. Such positive dynamics indicated the effective use of new production capacities and active work to increase market presence. The company's net profit increased from UAH 3 million in 2022 to UAH 4.7 million in 2023, which testified to a successful period of recovery after relocation. At the same time, in 2024, despite the record level of revenue, profit decreased to UAH 2.8 million. This could be explained by the growth of operating costs, expenses for modernisation and expansion of production, as well as by the impact of market fluctuations. The balance sheet analysis showed that the enterprise's assets increased from UAH 268.1 million in 2022 to UAH 448.5 million in 2023, which was the result of investments in new production premises and equipment. However, in 2024 the amount fell to UAH 341

28 Inventure, "Kulinichi invests 20 million euros in the construction of a bakery in the Lviv region," 2022. https://inventure.com.ua/news/ukraine/kulinichi-investiruet-20-mln-evro-v-stroitelstvo-hlebopekarnogo-zavoda-na-lvovshine.

million, which could indicate partial depreciation of investments or a change in the structure of assets. Liabilities increased from UAH 241.3 million in 2022 to UAH 416.9 million in 2023, and in 2024 decreased to UAH 306.6 million, which could indicate the gradual repayment of debts and the reduction of the financial burden. From an economic point of view, relocation made it possible for the company to preserve its production potential, enter a new stage of development and expand its presence in the domestic market. Although in the short term, costs increased and a decline in profitability was observed in 2024, the strategy of investing in new infrastructure created a basis for future growth.

The Kulinichi group of companies possessed extensive experience in large-scale bakery production. The total daily capacity of its enterprises was about 650 tonnes, the product range included more than 400 items, and the vehicle fleet numbered more than 1,000 units of specialised transport. In 2015-2025 the company implemented the construction of two flour-milling complexes equipped with certified quality-control laboratories, set up export operations to the USA, Canada, Israel and China, and successfully passed certification in accordance with the international standards Food Safety System Certification 22000 and International Featured Standards[29].

In the context of the general process of business relocation in Ukraine, the example of "Kulinichi" was representative: about 700 enterprises used the government programme, of which 210 relocated from Kharkiv, and Lviv region became the most popular destination, having accepted 24.6% of all relocated companies. In Lviv alone, more than 140 relocated legal entities and 67 sole proprietors were officially registered[30]. Unlike enterprises that returned to Kharkiv at the end of 2023, "Kulinichi" focused on developing a new production complex with the potential for scaling and export.

The relocation of the enterprise "Akvaizol" from the city of Kharkiv to Kalush in Ivano-Frankivsk region was an example of the successful transfer of production capacities in the context of martial law. The company carried out the

29 "Kulinichi invests 20 million euros in the construction of a bakery in the Lviv region,", 2022.

30 A. Kravchenko, "More than 200 enterprises from Kharkiv moved to Western Ukraine," 2023. https://www.sq.com.ua/ukr/novini/04.05.2023/ponad-200-pidprijemstv-iz-xarkova-pereyixali-na-zaxidnu-ukrayinu.

evacuation in the first weeks after the start of the full-scale invasion of the Russian Federation into Ukraine (2022), transporting about 70 railway wagons of production equipment. At the initial stage, all property was temporarily placed in warehouse premises, after which the construction of a new production complex began. The plant was built on an area of 10,000 m^2, which had previously been in a neglected state and had not been used for its intended purpose, which testified to the effective use of available spatial resources and to the creation of additional economic activity in the region[31].

Construction was completed in a short period, and already in April 2024 it was planned to launch the first production line for the manufacture of roofing and waterproofing materials. The second line was commissioned at the end of May of the same year. Overall, the new plant created about 100 jobs, most of which were taken by local residents, while only two employees relocated from Kharkiv. Production was oriented mainly towards external markets, and all products were certified in accordance with European standards, in particular had the Conformité Européenne certificate, which made it possible to compete in the international market and confirmed the high level of quality. This format of activity contributed to the restoration of Ukrainian exports and to the increase of foreign-currency revenues to local budgets[32]. The example of "Akvaizol" also reflected the general trends of business relocation from Kharkiv, which had been particularly affected by hostilities. As of the end of 2023, of the 236 enterprises that left the region, only 6 returned (about 2.5% of all relocated). Almost half (47%) remained operating in other regions. A significant part of the relocated were sole proprietors, but the experience of medium-sized business, as in the case of "Akvaizol", demonstrated the high adaptation potential of industrial enterprises[33].

The financial results of the company "Akvaizol" for 2022-2024 indicated stable functioning and the development of the enterprise during the period of re-

31 O. Andrievska, "Kharkiv enterprise built a new plant in Western Ukraine," 2024. https://www.sq.com.ua/ukr/novini/19.03.2024/xarkivske-pidprijemstvo-pobuduvalo-novii-zavod-na-zaxidnii-ukrayini.

32 Ukrinform, "In Kalush, the enterprise, which exported 70 wagons of equipment from Kharkiv, built a new plant," 2024. https://www.ukrinform.ua/rubric-economy/3841893-u-kalusi-pidpriemstvo-ake-vivezlo-z-harkova-70-vagoniv-obladnanna-zbuduvalo-novij-zavod.html.

33 O. Andrievska, "Kharkiv enterprise built a new plant in Western Ukraine," 2024.

location and adaptation to new conditions. The company's revenue in 2022 amounted to UAH 570 million, in 2023 it increased to UAH 901 million, and in 2024 it decreased to UAH 588 million. Such dynamics could be explained by the completion of the active phase of expansion of sales markets after relocation and by fluctuations in demand for products. Net profit increased from UAH 70.8 million in 2022 to UAH 190.9 million in 2023, after which in 2024 it decreased to UAH 87.2 million. Despite the decline in profitability in 2024, the indicators remained above the 2022 level, which testified to the preservation of business profitability. The enterprise's assets increased throughout the analysed period: from UAH 911 million in 2022 to UAH 1.104 billion in 2023 and UAH 1.283 billion in 2024. The company's liabilities also increased from UAH 410 million in 2022 to UAH 524 million in 2024, which could be related to investments in the modernisation and development of production. The number of staff remained relatively stable – 235 employees in 2022, 217 in 2023 and 232 in 2024, which indicated the preservation of human capital. Overall, the enterprise demonstrated financial resilience, expanded its assets and maintained a stable level of employment, adapting to the new economic conditions.

Another example of the adaptation of industrial enterprises to new conditions was the transformation of the activities of the Kharkiv Joint-Stock Company "Ukrainian Energy Machines", which united two key plants – "Turboatom" and "Elektrovazhmash". Unlike the full relocation with the restoration of production capacities in a new place, as in the case of "Akvaizol", the company expanded the geography of its presence by creating branches in relatively safe regions. In April 2024 separate divisions were opened in Lviv, Zakarpattia and Chernivtsi regions, which made it possible to transfer part of the production processes to regions with a lower level of risk to ensure the uninterrupted execution of important orders[34].

Heavy engineering enterprises, in particular such as "Turboatom", were of great importance for the country's economy. With the beginning of the full-scale invasion of the Russian Federation into Ukraine, it became obvious that the concentration of such production in front-line regions, in particular in Kharkiv re-

34 "In Kalush, the enterprise, which exported 70 wagons of equipment from Kharkiv, built a new plant," 2024.

gion, created significant risks for the stability of the energy sector. The transfer of part of production capacities to western regions made it possible to create reserve production bases, reduce the risks of production stoppages and at the same time stimulate the economic activity of host regions[35]. From an economic point of view, the enterprise experienced a decline: in 2023 its revenue decreased 2.7 times – from more than UAH 1 billion in 2022 to UAH 376.3 million. Such dynamics confirmed the need to transfer part of the functions to regions with greater economic stability and access to new markets. Lviv, Zakarpattia and Chernivtsi regions had the potential to form new industrial clusters, as well as opportunities to attract local resources and to develop new areas of production[36].

After the start of the full-scale military aggression in 2022, one of the most vulnerable enterprises was the company "Chumak", which until then had occupied leading positions on the Ukrainian market in the production of tomato paste, ketchups, mayonnaise and canned products. The main production facilities of the enterprise, located in the city of Kakhovka, Kherson region, were stopped on 24 February 2022 due to the direct threat of occupation. The evacuation of equipment was not carried out in time, and the warehouses with raw materials were looted. Attempts to re-launch the plant by the occupation administration were unsuccessful. As a result of the loss of the material and technical base and the disruption of logistics chains, the company suffered significant financial and human losses: the reduction in revenue reached 70%, and the number of staff decreased by almost 90% – from 1,200 employees only 110 remained[37].

After the loss of the Kakhovka plant, production was partially transferred to the capacities of other enterprises: tomato paste and sauces began to be produced in Lutsk (at the enterprise "Lutsk Foodz"), mayonnaise – at the capacities of Delta Food (relocated to Ternopil), and other products – in Kyiv, Zaporizhzhia

35 Yu. Tarasovsky, "Secretary of the National Security and Defense Council advises to locate new production facilities in Western Ukraine," 2024. https://forbes.ua/news/sekretar-rnbo-radit-rozmishchuvati-novi-virobnitstva-na-zakhodi-ukraini-22042024-20681.

36 V. Pepelia, "Former "Turboatom" is moving from Kharkiv to western Ukraine," 2024. https://landlord.ua/news/kolyshnij-turboatom-pereyizhdzhaye-z-harkova-na-zahid-ukrayiny/.

37 N. Shtuka, "Chumatskiy shlyakh. The war took away the Chumak brand's factory, exports and almost 1 billion UAH of revenue in Ukraine. How the company reinvented itself thanks to competitors," 2023. https://forbes.ua/company/chumatskiy-shlyakh-110-spivrobitnikiv-z-1200-padinnya-na-70-chastki-rinku-ta-vitorgu-yak-vizhivae-virobnik-ketchupiv-ta-konservatsii-chumak-z-kakhovki-09022023-11622.

and abroad (pasta – in Turkey, tomato paste – in Italy). This made it possible to preserve the brand and a minimum range of products (which was reduced by half), as well as to return goods to the retailers "Silpo", ATB, METRO. The company planned the complete transfer of the main production from Kakhovka to Odesa region, where the new plant was to provide 5,000 jobs and support the development of the agrarian potential of the region[38].

The financial indicators and economic analysis of the impact of the relocation of the company "Chumak" for 2022-2024 demonstrated significant changes caused by the war, the loss of production facilities in the occupied territory and the subsequent restoration of activities. In 2022 the enterprise's revenue decreased to UAH 573.3 million, and the net financial result was a loss of UAH 371.5 million. The reasons were the loss of part of the assets, the shutdown of production, the break-up of logistics chains and the sharp fall in sales volumes. Relocation to a safer region and the restoration of production infrastructure in 2023 made it possible to increase revenue to UAH 940.2 million and to return to profitability – UAH 53.2 million of net profit. In 2024 the effect of investment and recovery processes increased: revenue rose to UAH 1.36 billion, and profit – to UAH 62.1 million, although profitability indicators remained below pre-war levels. Assets decreased from UAH 901.7 million in 2022 to UAH 651.9 million in 2023, after which the assets increased to UAH 705 million in 2024. The volume of liabilities fluctuated within UAH 813.7-908.9 million, and in 2024 it exceeded the volume of assets (UAH 902.8 million), which indicated enduring financial risks and the need to optimise the debt burden. The number of employees decreased from 791 in 2022 to 118 in 2023, which was a direct consequence of relocation and the restructuring of production. In 2024 the staff increased to 133 persons, which indicated the gradual restoration of human potential, but still did not provide for a return to pre-war scale. From an economic point of view, the relocation of "Chumak" became a key factor in business preservation: it made it possible to avoid bankruptcy and to resume activities, although it required significant investments and adaptation to new market condi-

38 V. Kasiyan, "Chumak will open a new factory instead of the occupied one in Kakhovka," 2023. https://biz.liga.net/all/prodovolstvie/novosti/chumak-otkroet-novyy-zavod-vmesto-okkupirovannogo-v-kahovke.

tions. The indicators of 2023-2024 confirmed the effectiveness of the chosen strategy, but to achieve the pre-war level further capacity growth, the expansion of sales channels and the improvement of operational efficiency were necessary. The experience of individual enterprises demonstrated different models of adaptation to relocation conditions: from full relocation with the launch of new production capacities to the partial transfer of functions or cooperation with other manufacturers. Table 1 presents a comparative analysis of the relocation strategies of four large enterprises that made relocations after 2022.

Table 1. Comparative characteristics of the relocation strategies of selected Ukrainian enterprises

Enterprise	Initial location	Nature of relocation/adaptation	New location (region/city)	Additional features
Company "Kulinichi"	Kharkiv	Partial relocation, deployment of capacities in a safe region	Lviv region	Launch of new production, expansion of the geography of sales, preservation of employees
LLC "Akvaizol"	Kharkiv	Full relocation with the transfer of equipment	Kalush, Ivano-Frankivsk region	70 wagons of equipment evacuated, construction of a new plant on 10,000 m²
JSC "Ukrainian Energy Machines" ("Turboatom" + "Elektrovazhmash")	Kharkiv	Transfer of part of production processes to safe regions	Lviv, Zakarpattia, Chernivtsi regions	Decrease in revenue by 2.7 times
Company "Chumak"	Kakhovka, Kherson region	Full relocation after the loss of the main plant	Odesa region; partial production: Lutsk, Ternopil, Kyiv, Turkey, Italy	Loss of 70% of revenue, reduction of staff by 90%, creation of 5,000 jobs at the new plant

[Source: compiled by the authors on the basis of Kulinichi invests 20 million euros in the construction of a bakery in the Lviv region[39], In Kalush, the enterprise, which exported 70 wagons of equipment from Kharkiv, built a new plant[40], Shtuka[41]]

As the data from the table show, Ukrainian enterprises demonstrated diverse approaches to spatial adaptation – from full relocation from scratch to the creation of reserve branches in safe regions. Decisions on relocation depended on the type of activity, logistical capabilities, the level of strategic importance for the state, as well as on the ability to attract local resources for recovery. The greatest losses were suffered by those companies that lost access to the main production bases due to occupation or hostilities.

The study by Mudalige[42] focused on assessing the effectiveness of a decentralised model of local service provision in Japan as a developed country. The author analysed the ratio of revenues and expenditures of local authorities, demonstrating a stable institutional system and a high level of financial autonomy. Both studies confirmed the importance of the sub-national level in ensuring the sustainable development of territories. At the same time, the approaches differed: whereas in Japan decentralisation was a systemic governance instrument, in Ukraine it was a reaction to a crisis aimed at preserving business activity and supporting regions. In addition, the Japanese study was based on statistical indicators and a sustainable development model, while the present one was based on empirical cases and on the socio-economic effects of relocation. Similarly, in the study by Wardhana et al.[43], strategic spatial planning in Indonesia was considered, where sustainable development was achieved through coordinated actions of authorities, business, and the community. Unlike this, the present study descri-

39 "Kulinichi invests 20 million euros in the construction of a bakery in the Lviv region," 2022.

40 "In Kalush, the enterprise, which exported 70 wagons of equipment from Kharkiv, built a new plant," 2022.

41 N. Shtuka, "Chumatskiy shlyakh. The war took away the Chumak brand's factory, exports and almost 1 billion UAH of revenue in Ukraine. How the company reinvented itself thanks to competitors," 2023.

42 P. W. Mudalige, *Performance of decentralized local service delivery in developed countries: Case study of Japan*, in *European Scientific Journal*, 2020, Vol. 16, No. 35, pp. 40-55.

43 I. W. Wardhana, I. Riesfandiari, E. Jamal, V. W. Hanifah, P. Pihri, F. W. Handoyo, N. Purwono, R. P. Ramadhan, B. Setyawan, M. Placek, B. P. A. W, N. D. Chrysanti, R. M. Daniswara, B. Wijanarko, E. Setiadi, *Does a special economic zone impact the surrounding economy? The case study of Kendal, Indonesia*, in *Humanities and Social Sciences Communications,* 2025, Vol. 12, p. 225.

bed forced enterprise relocation as a reaction to security risks. The Indonesian model was based on a predictive approach, whereas the Ukrainian one – on the empirical analysis of already implemented cases.

In the work by Weik et al.[44], the formation of innovative clusters under the influence of external challenges was examined. As in the Ukrainian case, the focus was on the local level, cross-sectoral interaction and institutional support. At the same time, the key difference was the context: whereas Weik et al. dealt with proactive development in a stable environment, the present study dealt with emergency adaptation to war. Bourdin et al.[45] focused on the consequences of the COVID-19 pandemic for regional disparities in the EU, highlighting the importance of spatial planning under crisis conditions. This approach was close to the present one, but the scale of analysis differed: S. Bourdin et al. worked at the macro-regional level, while the relocation study dealt with specific local cases. Moreover, the pandemic had a different nature of impact from the military threat.

The transformation of industrial zones in France became the subject of the study by Bornert and Musolino[46]. The authors examined the planned restructuring of production spaces in accordance with sustainable development policy, which resembled the Ukrainian processes of spatial redistribution of business, but had a more strategic character. Whereas in Ukraine business changed location under the pressure of war, in France it did so as a result of institutional decisions. The study by Papadakis et al.[47] demonstrated the role of state support in increasing business resilience in Greece. Both studies emphasised the importance of the institutional response to crises, but the approaches were different: D.M. Papadakis et al. analysed regulatory and fiscal instruments, whereas the present study analysed the consequences of relocation and its impact on the develop-

44 S. Weik, A.-K. Achleitner, R. Braun, *Venture capital and the international relocation of startups,* in *Research Policy*, 2024, Vol. 53, No. 7, article no. 105031.

45 S. Bourdin, G. Baudelle, C. Marinos, L.-T. Buron, *Has the geography of collaborative spaces been affected by the pandemic? France as a case study*, in *Regional Studies*, 2024, Vol. 59, No. 1, article no. 2366293.

46 X. Bornert, D. Musolino, *The manufacturing reshoring phenomenon: A policy-oriented analysis of factors driving the location decision*, in *Economies*, 2024, Vol. 12, No. 5, p. 100.

47 D. M. Papadakis, A. Savvides, A. Michael, A. Michopoulos, *Advancing sustainable urban mobility: Insights from best practices and case studies*, in *Fuel Communications*, 2024, Vol. 20, article no. 100125.

ment of host regions.

The approach implemented in this study conceptually resonated with the work of Wang and Lin[48], in which business relocation was also considered as a factor of spatial change. In both cases it was established that the relocation of enterprises generated tangible consequences for regional development: in China – through changes in the level of energy intensity, in Ukraine – through the growth of employment, tax revenues and the revitalisation of investment activity in host communities. At the same time, the methodological basis of the studies differed significantly: Wang and Lin applied an MRIO model and the tools of spatial econometrics to a large array of statistical data for 2006-2018, whereas in this study the emphasis was placed on case analysis of enterprises relocated due to the war, with the examination of the interaction with the local environment, forms of adaptation and managerial models.

The comparative dimension was further expanded by the study of Garred and Yuan[49], devoted to the transnational relocation of Chinese enterprises in the context of the trade conflict with the USA. Similarly to the Ukrainian realities, the study described a forced but strategically justified character of relocation. At the same time, the key difference lay in scale: whereas the Ukrainian cases mainly concerned small and medium-sized business, in the Chinese case large companies that moved production abroad were analysed. Nevertheless, the results of both studies showed a similar trend: relocation could be not only a survival mechanism, but also an instrument for ensuring stability in a new location.

An additional analytical perspective was provided by the work of Abdullahi and Ibrahim[50], which covered the experience of enterprise relocation in Nigeria under security crisis conditions. Unlike the Ukrainian context, where, as this study showed, there was state support, accompaniment programmes for relocated companies and a favourable attitude of communities, in Nigeria enterprises

---

48 C. Wang, B. Lin, *Assessing the impact of regional industrial relocation in China: Based on the information taken from a multi-regional input-output analysis,* in *Journal of Global Information Management*, 2023, Vol. 31, No. 1, article no. 48.

49 J. Garred, S. Yuan, *Relocation from China (with Chinese characteristics)*, in *Journal of Development Economics*, 2025, Vol. 176, article no. 103510.

50 A. Abdullahi, A. Salihu, *The role of Nigeria in building sustainable development through green trade initiatives within the BRICS and AFCFTA framework,* in *British Journal of Interdisciplinary Research*, 2025, Vol. 2, No. 3, pp. 118-133.

faced numerous barriers – corruption, a lack of infrastructure and finance. Methodologically, that work was based on surveys of entrepreneurs, which contrasted with the applied, case-based and statistical-data approach used in this study.

It is also appropriate to draw attention to the study by Zhang and Ji[51] (2024), which analysed the impact of digital infrastructure development on entrepreneurial activity in China. It was established that in regions with better digital conditions, the number of businesses increased, especially in western provinces. This correlated with the findings of the present study, according to which the relocation of enterprises to safe regions of Ukraine contributed to the revitalisation of local entrepreneurship. Although the stimulation tools differed – digital services in China and relocation support in Ukraine – both approaches confirmed that the creation of a favourable environment was a key factor in activating business activity and in forming a resilient regional economy.

The study demonstrated that business relocation in Ukraine became an important instrument for preserving economic activity under security challenges. The key role of local communities, institutional support and the adaptive capacity of enterprises in ensuring the sustainable functioning of regions was identified. The spatial changes caused by the movement of companies had both short-term effects and the potential for long-term development of host territories.

3.2. Instruments for supporting the spatial relocation of business in the EU and in Ukraine: common features and differences

In 2020-2024, the relocation of enterprises within the EU became a common strategic instrument for adapting to changes in the global environment, including geopolitical crises, regulatory transformations and new risks to supply chains. Illustrative were the examples of business restructuring in response to the United Kingdom's withdrawal from the EU (Brexit) and the implementation of near-shoring strategies by leading European manufacturers. Under these conditions, companies sought to preserve access to the EU internal market, to reduce logistical costs and to strengthen resilience to external shocks.

---

51 Y. Zhang, Z. Ji, *Has China's new infrastructure promoted sustainable economic development? Evidence based on information infrastructure and entrepreneurship*, in *Sustainability*, 2024, Vol. 16, No. 7, article no. 3024.

One of the examples was the relocation of leading American financial institutions such as JPMorgan, Goldman Sachs and Citigroup. It is particularly worth noting Bank of America, which moved part of its staff and operations to the EU's financial centres. There was also the relocation of Morgan Stanley to European financial centres, which enabled the company to preserve its operational presence within the EU. Separately, the company Bosch could be mentioned, which moved part of its production to Hungary to optimise logistics and reduce costs. As a result of the breaking of integration ties with the EU internal market, London lost part of its functions related to financial operations for EU clients. This led to the transfer of staff, trading and back-office functions to France, Italy, Germany, and Ireland. For example, JPMorgan increased its staff in Paris from a few hundred to more than 800 people, and the total number of the company's employees in the EU increased from about 2,500 in 2023 to 6,000 in 2024.

Goldman Sachs moved part of its staff and operations to the EU's financial centres. Paris became the centre for client operations: one of the leading investment bankers, Dirk Livens, was transferred there. In Frankfurt, the bank increased its presence by moving part of its senior staff there to work with the German segment. Specialists from the natural resources sector were concentrated in Milan, and an office was opened in Munich to work with clients in the technology, media, and telecommunications sector. About 6,000 people continued to work in London, but the increase in the EU presence reflected changes in the distribution of functions between markets[52].

Citigroup identified Frankfurt as the main operations centre in the EU, moving about 200 employees there from London. In parallel, there was an expansion in Dublin, where the bank increased its staff beyond the initial plans. Part of the private banking division was moved to Madrid. At the same time, Citigroup retained about 6,000 employees in the United Kingdom[53]. Bank of America chose Dublin as its main office in the EU, moving 125 employees there with the prospect of expanding the staff to 1,000 people. The bank also increased its

52 A. Siampani, "Goldman Sachs relocates to Paris: Strategic move reflects post-Brexit realities," 2024. https://ceoworld.biz/2024/04/24/goldman-sachs-relocates-to-paris-strategic-move-reflects-post-brexit-realities/.

53 Reuters, "Citigroup to move 63 jobs out of London over Brexit," 2018. https://www.reuters.com/article/business/citigroup-to-move-63-jobs-out-of-london-over-brexit-idUSKCN1N52X7/.

presence in Paris, transferring part of its key bankers there, including under the plan to move about 400 employees from London. The British and Irish legal entities of the bank were merged, which made it possible to preserve access to the single EU market. At the same time, Bank of America maintained a team in the United Kingdom[54]. Morgan Stanley chose Frankfurt as its main European centre, moving about 200 employees there and transferring assets worth up to EUR 100 billion, which met the requirements of the EU regulatory environment. Additionally, the bank increased its staff in Dublin and Paris to obtain a licence to manage funds in Ireland. London remained the main office for European operations[55].

The company Bosch moved part of its production from Asia and partly from Germany to Hungary. It planned to cease the operations of the plants in Zebenice and Leinfelden by 2026 and to cut more than 500 jobs. The main aim of this decision was to reduce costs, to optimise logistics and to shorten delivery times. Hungary was chosen thanks to lower labour costs and to a convenient geographical location.

The financial results of Bosch[56] confirmed the economic feasibility of such steps. In 2022 the company's global sales amounted to about EUR 88.2 billion, and the EBIT margin was 4.3%. The Bosch India division received revenue of about EUR 1.67 billion, increasing profit before tax by 25.5% and net profit by 17%. In 2023 global revenue increased by 3.8% – to EUR 91.6 billion, the EBIT margin rose to 5.3%, and Bosch India recorded almost 15% revenue growth thanks to high demand in the automotive segment. In 2024, according to preliminary data, global sales amounted to about EUR 90.3 billion (a slight decline of 1% year-on-year), and the EBIT margin fell to 3.5% due to difficult market conditions. At the same time, investments in research and development increased to EUR 7.8 billion, which testified to a strategic focus on innovation and clean

54 D. Sapsted, "Bank of America to move 125 jobs to Dublin," 2018. https://www.relocatemagazine.com/brexit-bank-of-america-to-move-125-jobs-to-dublin-dsapsted.

55 Relocate Global, "Morgan Stanley the latest to eye European hub in Frankfurt," 2017. https://www.relocatemagazine.com/brexit-morgan-stanley-the-latest-to-eye-european-hub-in-frankfurt-dsapsted.

56 Bosch, "Annual financial results 2022," 2022; Bosch, "Bosch annual report 2024," 2024.

technologies. Thus, the examples given showed that relocation within the EU could be aimed both at preserving access to markets and at meeting regulatory requirements, and at increasing economic efficiency and optimising costs, while supporting a long-term innovation strategy and stable financial indicators.

In 2022-2024, the relocation of enterprises in EU countries and in Ukraine underwent an evolution, transforming from a purely adaptive reaction to a crisis into an instrument for the strategic restructuring of the economy.[57,58,59] Instead of a general description, it was worth focusing on specific transformational trends that became decisive for the new wave of spatial mobility of business. In Ukraine, apart from security reasons, in 2023-2024 relocation increasingly began to take place as a form of re-industrialisation of peripheral regions, primarily through cooperation with local communities, participation in economic recovery programmes and the use of inclusive planning instruments. Demand emerged for the relocation of high-tech production, which required modernised infrastructure but at the same time could operate in small towns or villages[60].

In the EU in 2022-2024, relocation was increasingly used as an instrument for forming "responsible supply chains" in response to the risks of geopolitical fragmentation and environmental instability. This covered not only the return of production from Asia, but also the creation of "local resilience clusters" in Central Europe, which combined logistics, production, research, and digitalisation[61]. Relocation was also linked to the EU's environmental standards,

57 M. ALQSASS, H. JARADAT, B. R. REXHEPI, B. N. ZUREIGAT, J. AL-GASAWNEH, H. MAALI, *The Impact of Dividends Per Share and Retained Earnings Per Share on Share Price: A Study Based On Jordanian Companies*, in *Quality - Access to Success*, 2023, Vol. 24, No. 197, pp. 67–74.

58 B. R. REXHEPI, L. MUSTAFA, M. K. SADIKU, B. I. BERISHA, S. U. AHMETI, O. R. REXHEPI, *The Impact of the COVID-19 Pandemic on the Dynamics of Development of Construction Companies and the Primary Housing Market: Assessment of the Damage Caused, Current State, Forecasts*, in *Architecture Image Studies*, 2024, Vol. 5, No. 2, pp. 70–79.

59 V. BRYCH, R. SKRYNKOVSKYY, L. SHKVARCHUK, G. LIAKHOVYCH, R. SLAV'YUK, O. BORYSIAK, *Portfolio Optimization of Equity Funds, in Proceedings - International Conference on Advanced Computer Information Technologies (ACIT)*, Ruzomberok, 2022, pp. 207–210.

60 T. YU. MELNYK, *Peculiarities of Ukrainian business entering international markets under the influence of military risks*, in *Economics, Management and Administration*, 2025, Vol. 110, No. 4, pp. 3-11.

61 F. BUTOLLO, C. STARITZ, F. MAILE, T. WUTTKE, *The end of globalized production? Supply-chain resilience, technological sovereignty, and enduring global interdependencies in the post-pandemic era,* in *Critical Sociology*, 2024, Vol. 50, No. 4-5, pp. 779-798.

in particular the Carbon Border Adjustment Mechanism, which stimulated the movement of "green" production capacities closer to the consumer to simplify compliance with regulatory requirements. Another economic aspect was the transformation of the labour market. In Ukraine, relocated enterprises faced a shortage of personnel due to mass migration and mobilisation, while in the EU companies experienced difficulties in attracting qualified staff in new regions due to a lack of housing, school infrastructure and social support.[62,63] For both regions, an important innovation was the "remote production" model, in which part of the processes was performed on an outsourcing basis or through digital management platforms. A comparative analysis of the experiences of Ukraine and the EU is presented in Table 2.

Table 2. Comparison of current trends in enterprise relocation in Ukraine and the EU (2022-2024)

Parameter	Ukraine	EU
New motives for relocation	Economic recovery, safe production	Environmental responsibility, shortening of supply chains
Sectors that relocate	Agro-industrial, food industry, defence, energy engineering	Electronics, pharmaceuticals, automotive industry
Labour challenges	Staff shortage, integration of internally displaced persons	Lack of social infrastructure in new clusters
Digital support tools	Platforms for relocation logistics, electronic registration of production capacities	ERP systems with geo-analytics, digital industrial-management parks
Financial incentives	State relocation programme, grants from international organisations	European funds, concessional loans
Social integration	Provision of housing for staff	Corporate social responsibility

[Source: compiled by the authors based on European Commission[64].]

62 B. R. REXHEPI, E. DACI, L. MUSTAFA, B. I. BERISHA, *Analysis of the Effectiveness of Freelance Exchanges and Their Demand among Corporate Customers in the Context of Tax Regulation,* in *Scientific Bulletin of Mukachevo State University. Series Economics*, 2024, Vol. 11, No. 1, pp. 60–70.

63 S. KOVALCHUK, V. MOROKHOVA, O. BONDARENKO, A. MOHYLOVA, A. DANKEVYCH, J. LIU, *Creative Economy and Value Creation through Marketing Analytics: New Approaches and Opportunities*, in *Pakistan Journal of Life and Social Sciences*, 2024, Vol. 22, No. 2, pp. 9812–9824.

64 European Commission, "REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition," 2022.

Thus, the main difference lay in the fact that in Ukraine relocation was the result of responding to wartime destructive factors, whereas in the EU it acted as an element of planned economic transformations. In both cases there was a transition from short-term measures to the long-term re-profiling of business, which combined economic security, resilience and technological readiness for future challenges. The Ukrainian experience demonstrated the ability of enterprises to adapt quickly and to preserve production potential in crisis conditions, while the European example illustrated a focus on the optimisation of production and logistics processes.[65,66] The combination of these approaches could become the basis for a joint post-war economic strategy and for deepening integration in the industrial sector.

This study revealed the specific nature of the impact of relocated business on the socio-economic environment of the host regions of Ukraine under wartime conditions, which fundamentally distinguished it from the analysis by Zalkat et al.[67], who focused on the individual motivations of Syrian refugees in Germany and Sweden. Whereas Zalkat et al. emphasised the internal factors of entrepreneurial activity – such as self-identity, aspiration for independence or social support – the Ukrainian study focused on the collective effects of the relocation of enterprises: the creation of new jobs, tax revenues, and the development of institutional interaction. In the study by Fritsch et al.[68] the issue of the long-term impact of entrepreneurship on the economic dynamics of regions in a stable environment was raised. The authors identified a link between entrepreneurial activity and productivity in Germany, the United Kingdom and the USA. Unlike this, the present study focused on short-term transformations caused by the forced re-

65 O. KHODAKIVSKA, M. MARTYNIUK, YU. LUPENKO, *Prospective Analysis of the Implementation of the "Green" Economy in the Agricultural Sector of Ukraine for the Next 10 Years,* in *Scientific Horizons*, 2023, Vol. 26, No. 10, pp. 163–179.

66 I. Y. MATYUSHENKO, T. V. SHTAL, L. I. PIDDUBNA, I. O. PIDDUBNYI, Y. M. KVITKA, *Development Prospects of Ukraine's Foreign Trade in Agricultural Products in the Context of European Integration and Global Challenges,* in *Journal of Advanced Research in Law and Economics*, 2018, Vol. 9, No. 4.

67 G. Zalkat, H. Barth, L. Rashid, *Refugee entrepreneurship motivations in Sweden and Germany: A comparative case study*, in *Small Business Economics*, 2023, Vol. 63, No. 1, pp. 477-499.

68 M. Fritsch, J. Potter, H. Qian, G. Fotopoulos, *Persistence and change in regional entrepreneurship performance: A three-economy comparison*, in *Regional Studies*, 2025, Vol. 59, No. 1, article no. 2474033.

location of enterprises due to the war. Methodologically, Fritsch et al. used quantitative analysis, whereas the present study was based on case studies and on practical indicators – such as employment dynamics or the participation of business in community life.

The work by Vaduva et al.[69] was focused on ethical leadership and spiritual values in the entrepreneurial environment of Central and Eastern Europe. The authors interpreted entrepreneurship as an instrument of moral renewal based on trust, service to the community and a culture of responsibility. By contrast, the present study demonstrated a different vector: it considered enterprises as a stabilising resource in crisis conditions, where priority was given to adaptation mechanisms, effective interaction with local authorities and the provision of social well-being. What remained common was the understanding of entrepreneurship as a factor of development, but the substantive content and strategic approaches were fundamentally different. In the work by Rodríguez-Pose et al.[70] emphasis was placed on the strategic rethinking of approaches to spatial development, where local entrepreneurship was seen as a mechanism for overcoming the "left-behindness" of certain territories. A similar emphasis was present in the present study, but with a crisis focus: here relocated companies became catalysts of economic recovery. Whereas A. Rodríguez-Pose et al. emphasised the balance between efficiency and equity as long-term goals, this work was oriented towards applied results, measured through taxes, employment and social integration.

The development of entrepreneurial ecosystems in peripheral regions of Germany was at the centre of attention of Bergholz et al.[71]. The authors underlined the importance of mentoring, educational initiatives and institutional support for young entrepreneurs. In turn, the present study examined the emergency response of business to the threat, which was accompanied by relocation, the rethinking of logistics chains and the introduction of new models of interaction

69 S. A. Vaduva, L. Brouthers, M. P. Benchis, A. Nedelcuț, *Redefining global entrepreneurship: Shifting focus from China to Central and Eastern Europe*, in *Journal of Ethics in Entrepreneurship and Technology*, 2024, Vol. 4, No. 5, pp. 195-218.

70 A. Rodríguez-Pose, F. Bartalucci, N. Lozano-Gracia, M. Dávalos, *Overcoming left-behindedness: Moving beyond the efficiency versus equity debate in territorial development*, in *Regional Science Policy & Practice*, 2024, Vol. 16, No. 12, article no. 100144.

71 C. Bergholz, R. Sternberg, L. Stolz, J. Bersch, *Unemployment as a driver of entrepreneurship in Eastern and Western Germany*, in *Regional Studies*, 2025, Vol. 59, No. 1, pp. 2511713.

with communities. Despite the different conditions, both works concluded about the significant role of local entrepreneurship in strengthening the resilience of regions. In the study by Poór et al.[72] attention was focused on how economic instability and external challenges affected the operating models of Slovak companies. The authors analysed the transformation of HR practices, management flexibility and the ability of companies to adapt. These conclusions partially echoed the Ukrainian context, where enterprises also had to change working formats quickly. At the same time, the scope of the study by Poór et al. was organisational, whereas the Ukrainian study covered a broader regional dimension.

The relocation of enterprises in Ukraine and in the EU acquired a strategic character and ceased to be exclusively a reaction to a crisis. In Europe, companies predominantly proactively formed resilient production and logistics clusters, taking into account environmental standards and the need to shorten supply chains. In Ukraine, relocation acted as an instrument of the emergency restructuring of the economy, which contributed to the re-industrialisation of peripheries and to the support of employment. In both cases, relocated enterprises played an important role in strengthening the economic resilience of regions and in integrating business into local communities.

4. Conclusions

The study made it possible to establish that the relocation of business in 2022-2024 in Ukraine and in EU countries was transformed from an instrument of crisis response into an important factor of regional development. In the Ukrainian conditions, the movement of enterprises became a response to security threats caused by the full-scale war, whereas in the EU relocation was mainly implemented for adaptation to geopolitical and environmental challenges. The analysis of empirical examples showed that relocated Ukrainian enterprises made a significant contribution to the socio-economic stabilisation of host regions. In particular, the company "Kulinichi" invested EUR 20 million in the construction of a new bakery complex in Lviv region, creating 3,000 jobs, of which 500 were designated for internally displaced persons, and its revenue increased from UAH

72 J. Poór, S. Tóbiás Kosár, E. Seres Huszárik, T. Zsigmond, *The impact of the difficult economic situation on the operation of Slovak companies in the shadow of war*, in *Journal of Ecohumanism*, 2024, Vol. 3, No. 7, pp. 2213-2230.

113.8 million in 2022 to UAH 214.3 million in 2024. The enterprise "Aquaizol" moved its operations from Kharkiv to Kalush, implementing an industrial project on a neglected site and providing jobs for the local population; in 2023 its revenue reached UAH 901 million, and its assets in 2024 increased to UAH 1.283 billion. The example of the company "Chumak" demonstrated the restoration of operations through relocation to Odesa region and the development of new production chains, with revenue increasing from UAH 573.3 million in 2022 to UAH 1.36 billion in 2024. JSC "Ukrainian Energy Machines" moved part of its production processes to Lviv, Zakarpattia and Chernivtsi regions, which made it possible to preserve production activities in difficult conditions.

Within the EU, the relocation of financial institutions such as JPMorgan, Goldman Sachs and Bank of America after Brexit contributed to an increase in staff numbers in Paris, Frankfurt, and Milan; only JPMorgan increased its staff in the EU from 2,500 in 2023 to 6,000 in 2024. This made it possible to preserve the performance of financial operations within the single market and to avoid regulatory barriers. An example of industrial relocation was the company Bosch, which moved part of its production to Hungary to optimise logistics and reduce costs. Such moves contributed to the formation in the EU of "resilience clusters" with a high level of digitalisation and compliance with environmental standards. In 2023 Bosch's global revenue reached EUR 91.6 billion, which was 3.8% more than in 2022, and investments in research and development in 2024 increased to EUR 7.8 billion, which indicated the combination of the effectiveness of relocation with long-term development.

Thus, both the Ukrainian and the European experience confirmed the ability of relocated business to act as a catalyst for the spatial restructuring of the economy. In Ukraine, the decisive factors were the movement of production to safer regions and the preservation of economic activity, whereas in the EU, the factors were the strengthening of production and logistics chains and the creation of new jobs. Both contexts demonstrated that, under favourable conditions, relocated business was able not only to adapt, but also to generate a long-term multiplier effect, strengthening the economic resilience of regions. A limitation of this study was that it was based mainly on the analysis of individual cases without the use of the full array of statistical data across the country. The prospect for future research was the formalisation of a quantitative model for assessing the impact of relocated enterprises on regional development using comparative econometrics and spatial analysis.

GULZHAMAL BEKMURZAEVA
Researcher at the Department of Social Sciences – Osh Technological University named after M.M. Adyshev
bekmurzaevagulzhamal@gmail.com
BAIBOLOT ABYTOV
Professor, Full Doctor at the Institute of Oriental Studies – Osh State University
ba.abytov@outlook.com
SATYMBAI OSMONOV
Associate Professor, PhD at the Department of Social Sciences – Osh Technological University named after M.M. Adyshev
s-osmonov@hotmail.com
ZARIPA ABDYRAZAKOVA
Associate Professor, PhD at the Department of Social Sciences – Osh Technological University named after M.M. Adyshev
z_abdyrazakova@outlook.com
BEKZAT TAGAEV
Lecturer, PhD at the Department of Social Sciences – Osh Technological University named after M.M. Adyshev
btagaev@hotmail.com

ORGANISATIONAL ASPECTS OF THE FORMATION OF AUTONOMOUS REGIONS: HISTORICAL EXPERIENCE AND INTERNATIONAL COMPARATIVE PERSPECTIVES

ABSTRACT

The aim of the study was to identify the prerequisites and peculiarities of the formation of the Kara-Kyrgyz Autonomous Oblast in the context of political transformations. The research methodology was based on the analysis of works that examined the political situation in the Russian Empire, the role of the Bolshevik Party in the revolutionary transformations, and the consequences of these events for the political status of the Kyrgyz people. A comparative approach using Political, Economic, Sociological, Technological, Legal, Environmental analysis was also applied, which allowed the analysis of political, economic, social, technological, environmental, legal factors that influenced the processes of autonomisation. It was revealed that the Great October Socialist Revolution created prerequisites for political changes that influenced the national self-determination of the Kyrgyz people. It was established that the key stage was the decision to withdraw the Kyrgyz from the Turkestan Autonomous Soviet Socialist Republic and the formation of the Kyrgyz Autonomous Oblast. The study showed that the creation of autonomy took place under conditions of complex political struggle, as well as under the influence of socio-economic factors. As a result of the work, it was possible to analyse the mechanisms of formation of administrative structures and the influence of revolutionary events on the processes of nation-building. The findings were important for the further study of the history of statehood in Kyrgyzstan and could also be used in comparative analyses of political transformations in other countries.

KEYWORDS: Autonomy – Korenisation – Administrative-Territorial Demarcation – National Identity – Decentralisation

1. Introduction

The study of the topic of organisational aspects of the formation of autonomous oblasts is important for understanding the historical experience of statehood of Kyrgyzstan. During the transformation processes of the early 20th century, the Kyrgyz people faced the need to determine the political status, which led to the establishment of the Kyrgyz Autonomous Oblast. The analysis of these events allows identifying the factors that influenced the formation of administrative structures, governance mechanisms and interaction with the central government. In addition, a comparative study of similar processes in other countries helps to assess the peculiarities and uniqueness of this historical path. Understanding these processes contributes to a deeper understanding of national identity, the role of political movements and factors influencing the formation of autonomy in different historical conditions.

The formation of autonomous regions is closely connected with the political and administrative processes that took place in different historical periods. Aidaraliev and Madaliev[1] examined the process of Kyrgyzstan's independence and its evolution in the context of socio-political transformations. In the work, the

1 A. AIDARALIEV, M. MADALIEV, *Formation of socio-political entity and independence of Kyrgyzstan*, in *Lex Humana*, 2023, 15(1), pp. 248–259.

authors paid attention to the historical prerequisites for the formation of autonomy, starting from the period of the Russian Empire and the subsequent incorporation of the region into the Soviet Union. The researchers emphasised that the creation of autonomous oblasts, including the Kyrgyz Autonomous Oblast, was part of a general Soviet national policy aimed at streamlining the national-territorial division of Central Asia.

An important role in the study of the historical context of the formation of autonomous oblasts was played by Bektursunov,[2] who focused the research on analysing Kazakh-Kyrgyz relations in the process of formation of Soviet Kyrgyzstan in 1917-1924. The author's work raised the issues of territorial division, ethnic-political aspects, and the influence of Bolshevik national policy on the creation of autonomous regions. The author noted that the formation of autonomous Kyrgyzstan was not a homogeneous process, but was accompanied by disputes over borders, resource allocation and administrative structure.

Special attention was paid to the issues of autonomous administration by Aranda and Kölling.[3] The work traced the evolution of the political structure, analysed the impact of centralised and decentralised governance models, and assessed the degree of participation of local elites in the decision-making process. The financial independence of the autonomous entities was an important aspect of the sustainability. An important role in the study of the historical context of the formation of autonomous regions was played by the work of Arban,[4] where the author considered not only the political decisions of the central government, but also the socio-economic conditions that influenced the formation of autonomy.

Political institutions played a key role in the organisation and functioning of the autonomous regions. Anisov et al.[5] examined the democratic institutions

---

2 M. BEKTURSUNOV, *'Two parts – one whole'? Kazakh–Kyrgyz relations in the making of Soviet Kyrgyzstan, 1917–24*, in *Central Asian Survey*, 2022, 42(1), pp. 109–126.

3 J. T. ARANDA, M. KÖLLING, *Spain (Kingdom of Spain): A union of autonomous communities*, in *The Forum of Federations Handbook of Federal Countries 2020*, edited by Michael Burgess, John Pinder, Palgrave Macmillan, 2020, pp. 329–340.

4 E. ARBAN, *Sovereignty and autonomy of constituent units in federal and regional systems: A case study of Italy*, in *Beyond Autonomy*, edited by Sergio Bartole, Brill, 2021, pp. 47–66.

5 R. ANISOV, G. OMOROVA, U. YUSUPOV, N. NARMATOV, A. KOKOEVA, A. BERENALIEVA, Z. ABDULLAEVA, *Democracy in Kyrgyzstan: Institutions and their features*,

of Kyrgyzstan, looking at the specificity and impact on the governance of the country. The work focused on the functioning of local authorities that emerged after independence and the relationship to historical models of autonomous governance.

Aseinov[6] studied the fiscal autonomy of local governments in Kyrgyzstan, emphasising that the ability of a region to manage its resources independently is an important element of autonomous development. The author analysed the legislative mechanisms regulating taxation at the local level, as well as the compliance with international standards. In addition to political and administrative aspects, social and cultural factors were important in the process of formation of autonomous regions.

Bazarkulova et al.[7] studied the processes of modernisation of traditional Kyrgyz society and the impact on the state structure. The work considered the social transformations that took place in the region during the 20th century, as well as the impact on the formation of the population's identity and its attitude to the institutions of power. The economic sustainability of the autonomous entities depended to a large extent on the ties with neighbouring regions and international partners.

Komendantova et al.[8] analysed the impact of economic and infrastructural links in Central Asia on the sustainable development of Kyrgyzstan. The study looked at issues of transport logistics, trade, integration into international economic structures, as well as problems related to resource constraints and geographical isolation of the region. Thus, the formation of autonomous regions was a complex process involving historical, political, economic and social factors. The case of Kyrgyzstan shows how different governance mechanisms, economic auto-

in *Open Journal of Social Sciences*, 2021, 9(12), pp. 94–102.

6 D. ASEINOV, *Autonomy of local governments in taxation in Kyrgyzstan*, in *Proceedings of International Conference of Eurasian Economies*, Eurasian Economists Association, 2020, pp. 152–161.

7 T. BAZARKULOVA, V. DZHANIBEKOVA, K. NURDINOVA, G. TOKOEVA, Z. AZIMOVA, G. AMATOVA, D. ESHENALIEVA, Z. AKMATOVA, *The modernization process of traditional Kyrgyz society*, in *Journal of Positive School Psychology*, 2022, 6(11), pp. 1631–1635.

8 N. KOMENDANTOVA, E. ROVENSKAYA, N. STRELKOVSKII, F. S. RODRIGUEZ, *Impacts of various connectivity processes in Central Asia on sustainable development of Kyrgyzstan*, in *Sustainability*, 2022, 14(12), article no. 6998.

nomy and cultural specificities influenced the development of autonomous territories.

The aim of the study was to analyse the international situation and unresolved social problems prior to the creation of the Kara-Kyrgyz Autonomous Oblast. The following tasks were set as part of the research:

• to study the international relations and socio-political situation in Central Asia before the establishment of the autonomous region;

• to analyse the factors that contributed to the foundation of Kyrgyz statehood;

• to study the process of implementation of the socialist revolution and the conditions for the formation of the first revolutionary committee.

2. Materials and methods

The methodology of the research was based on the application of several methods that allowed an understanding of the historical conditions and international situation preceding the establishment of the Kara-Kyrgyz Autonomous Oblast. The methods of historical analysis, historical relativism, and historicism were used in the research process. The method of historical analysis allowed the consideration of historical events and processes in detail in the context of time and space, identifying key moments that played a role in the formation of statehood.

The method of historical relativism allowed events and processes to be considered not as absolute truths, but as phenomena dependent on specific historical conditions and interactions, which provided a deeper understanding of the influence of external and internal factors on the development of Kyrgyzstan. The method of historicism was used to study historical events in the development, emphasising the significance of socio-political changes and revolutionary processes in the 1920-1930s.

Additionally, Political, Economic, Sociological, Technological, Legal and Environmental (PESTEL) analysis was applied to assess the influence of political, economic, social, technological, environmental, and legal factors on the process of creating an autonomous region. The political aspect included the study of the impact of the Bolshevik policy of korenisation and national self-determination.

The economic analysis made it possible to examine the economic conditions of the region and the role in the administrative-territorial division.

The social factor included the analysis of demographic processes and the ethnic composition of the population. The technological aspect covered the level of development of infrastructure and communications necessary for effective autonomy management. The environmental factors took into account the natural and geographical features of the region, and the legal analysis helped to examine the normative documents that determined the status and functions of the autonomous region.

A separate aspect of the study was a comparative analysis aimed at comparing the process of formation of the Kara-Kyrgyz Autonomous Oblast with similar examples in other countries. The Guangxi Zhuang Autonomous Region in China, Catalonia in Spain, and South Tyrol in Italy were chosen as case studies due to the differences in legal models of autonomy, historical and cultural contexts, and levels of political and economic integration with the central government. These regions represented a wide range of autonomous models in unitary and semi-decentralised states.

The comparison was based on a number of criteria: legal enshrinement of autonomy (presence of the own parliaments, degree of legislative independence), economic self-sufficiency (taxation system, budgetary autonomy, regional contribution to gross domestic product), political structure (scope of powers, participation in national governance), social policy (access to education and cultural rights, protection of minorities), historical and cultural prerequisites (traditions of self-governance, national movements), and mechanisms of interaction with the central government.

The basis for the analysis was the articles by Boryslavska,[9] and Shubert et al.[10] Additionally, Kyrgyz sources were taken into account, including the works of historians such as Kurmanov,[11] Dzhamgerchinov,[12] Kenensariev,[13] Dzhunu-

9 O. BORYSLAVSKA, *Territorial autonomy, regionalization and problems of political secession in Europe*, in *Ukrainian Journal of Constitutional Law*, 2017, 5(4), pp. 11–17.

10 A. SHUBERT, C. D. SMITH, J. F. O'CALLAGHAN, R. J. HARRISON, M. J. VIGUERA, J. V. GINÉS, J. S. RICHARDSON, H. G. KOENIGSBERGER, R. CARR, V. RODRIGUEZ, *Spain*, in *Encyclopedia Britannica*, 2025.

shalieva,[14] which allowed a balance of international and local approaches in the study. The monographs became important sources for a deep understanding of the processes that took place during that period. Recommendations aimed at strengthening the administrative autonomy of the regions, stimulating the economic development, modernising infrastructure, and enhancing mechanisms of interaction between the central government and local authorities were also made.

3. Results

The formation of the Kara-Kyrgyz Autonomous Oblast took place in the difficult political conditions of the 1920s, when Central Asia became the scene of large-scale transformations carried out by the Soviet authorities. After the end of the Civil War, the region was in a state of political instability due to the confrontation between different groups of influence, including the Basmachi movements, which opposed the establishment of Soviet power. One of the key tasks of the Bolsheviks was to create an effective administrative system capable of integrating national minorities into the new state structure.

During this period, the Soviet Union actively implemented a policy of korenisation aimed at supporting the national self-determination of peoples and the formation of national administrative units.[15] The main idea of "Korenisation" was to involve representatives of indigenous peoples in governance, develop national cultures and languages, and create conditions for the formation of local authorities. In Central Asia, this process was accompanied by complex negotia-

11 Z. KURMANOV, *The fight of political elites of Kyrgyzstan during the period of revival of the national statehood of the Kyrgyz people: 1917–1927*. National Academy of Sciences of the Kyrgyz Republic, 1997.

12 B. DZHAMGERCHINOV, *Istoriya Kirgizskoy SSR / History of the Kyrgyz SSR*. Mektep, 1979.

13 T. KENENSARIEV, *Istoriya kolonial'noy politiki russkogo samoderzhaviya na okrainakh: Ekonomicheskaya politika Rossii v Kyrgyzstane vo 2-y polovine XIX – nach. XX vv.* LAMBERT Academic Publishing, 2012.

14 G. DZHUNUSHALIEVA, *Cultural policy of the state in Kyrgyzstan: Stages and ways of implementation: Second half of XIX century – late 30s XX century*. Kyrgyz-Russian Slavic University, 2005.

15 T. BAZARKULOVA, V. DZHANIBEKOVA, K. NURDINOVA, G. TOKOEVA, Z. AZIMOVA, G. AMATOVA, D. ESHENALIEVA, Z. AKMATOVA, *The modernization process of traditional Kyrgyz society*, in *Journal of Positive School Psychology*, 2022, 6(11), pp. 1631–1635.

tions and territorial disputes, as the national identities of many peoples had not yet been clearly established, and the boundaries of future autonomies were often determined on the basis of political expediency rather than historical and cultural factors.

The administrative and territorial reforms carried out in the Union of Soviet Socialist Republics (USSR) played a key role in the creation of the Kara-Kyrgyz Autonomous Oblast. In 1922, the Kara-Kyrgyz Autonomous Oblast was formed within the Turkestan Autonomous Soviet Socialist Republic (ASSR), which in 1924, as a result of the national-territorial division of Central Asia, became part of the Russian Soviet Federative Socialist Republic (RSFSR). This step was an important stage on the way to the establishment of full-fledged statehood for the Kyrgyz people.

In the following years, the autonomy was further developed, which in 1926 led to its transformation into the Kyrgyz ASSR, and then, in 1936, to the formation of the Kyrgyz SSR.[16] Thus, the creation of the Kara-Kyrgyz Autonomous Oblast was the result of a combination of several factors: the Bolsheviks' political strategy to streamline administration in Central Asia; the policy of korenisation, which allowed the peoples of the region to gain national autonomy; and large-scale administrative and territorial reforms that changed the map of the Soviet Union.

The formation of autonomy took place in the context of large-scale changes in the Soviet Union associated with administrative-territorial demarcation, the policy of korenisation and the integration of national regions into the Soviet system of governance.[17] Political factors played a leading role in the process of autonomisation. The Soviet authorities sought to strengthen control over the national peripheries, while at the same time implementing a policy of korenisation aimed at involving indigenous peoples in the administration and creation of national-territorial units. The administrative-territorial demarcation of 1924 was a

16 N. KOMENDANTOVA, E. ROVENSKAYA, N. STRELKOVSKII, F. S. RODRIGUEZ, *Impacts of various connectivity processes in Central Asia on sustainable development of Kyrgyzstan*, in *Sustainability*, 2022, 14(12), article no. 6998.

17 O. TUREMURATOV, B. BYULEGENOVA, S. POGODIN, M. ONUCHKO, R. NURTAZINA, *Urbanization Trends in Central Asian Countries: Aspects of Extensive and Intensive Agglomeration Growth*, in *Public Organization Review*, 2024, 24(3), pp. 963–986.

key event that contributed to the creation of the Kara-Kyrgyz Autonomous Oblast within the RSFSR.

Economic factors also had a significant impact. The region was agrarian, and pastoralist specialised, which required economic modernisation and infrastructure development. Kyrgyzstan's inclusion in the Soviet economic system led to a gradual transition from a traditional nomadic lifestyle to a sedentary one, which was in line with the goals of Soviet industrialisation and collectivisation.[18] Social factors included the ethnic composition of the population, literacy rates and demographic processes. In the 1920s, the Kyrgyz people began to realise the national identity, which was an important argument in favour of autonomy. Migration flows associated with the resettlement of Russians and Ukrainians to the region also influenced the social structure of society.

Technological factors concerned the level of infrastructure development and transport links. The region's incorporation into the USSR was accompanied by the construction of roads, telegraph lines and administrative offices, which helped to strengthen state power and facilitate the administration of the territory. Environmental factors played an important role in determining the economic specialisation of the region. Kyrgyzstan, with its mountainous terrain and limited arable land resources, had natural conditions favourable for the development of livestock farming, but required special approaches to natural resource management.[19,20]

Legal factors were related to the legislative framework of the USSR regulating the process of establishing national autonomies. Decrees of the Soviet government determined the status and functions of the autonomous regions, as

18 R. ANISOV, G. OMOROVA, U. YUSUPOV, N. NARMATOV, A. KOKOEVA, A. BERENALIEVA, Z. ABDULLAEVA, *Democracy in Kyrgyzstan: Institutions and their features*, in *Open Journal of Social Sciences*, 2021, 9(12), pp. 94–102.

19 I. MUKAMBAEVA, A. SAYAKBAEVA, N. AKYLBEKOVA, N. MUKAMBAEV, A. ERMEKOVA, E. SHAMBETOVA, *Influence of the state investment budget on the Kyrgyz agricultural sector through data analysis*, in *SIST 2024 - 2024 IEEE 4th International Conference on Smart Information Systems and Technologies, Proceedings*, Institute of Electrical and Electronics Engineers, 2024, pp. 409–414.

20 C. ADAMKULOVA, K. ZHAKSHYLYKOVA, R. ASANOV, N. AKYLBEKOVA, N. MAMBETKAZIEVA, *Dairy industry as a driver of economic growth,* in *Scientific Horizons*, 2025, 28(4), pp. 70-83.

well as the relationship with the central government. Consideration of the process of creation of the Kara-Kyrgyz Autonomous Oblast through the prism of PESTEL-analysis allows identifying the main determinants that influenced its organisational formation (Table 1).

Table 1. PESTEL analysis of factors that influenced the creation of the Kara-Kyrgyz Autonomous Oblast

Factor	Influence on process autonomisation
Political	The policy of korenisation, the administrative-territorial demarcation of 1924, the need to strengthen Soviet power in the region
Economic	Agrarian and pastoralist economy, need for modernisation, integration into the Soviet economic system, prospects for industrialisation
Social	National self-determination of the Kyrgyz, ethnic composition, migration processes, growth of education and social activity level
Technological	Infrastructure development (roads, communications), improved administration, inclusion of the region in the USSR transport system
Ecological	Mountainous relief, limited arable land, availability of natural resources, specifics of agriculture (animal husbandry)
Legal	Legal framework of the USSR, legislative acts on national autonomies, regulation of the functions of the authorities

Source: compiled by the authors.

Thus, the creation of the Kara-Kyrgyz Autonomous Oblast was the result of a complex impact of political, economic, social and natural factors that contributed to the formation of its administrative status and integration into the Soviet state system. The creation of autonomous oblasts in various countries of the world reflects the desire of states to consider the ethnic, cultural and historical diversity of the regions. In the Soviet Union, the policy of national-territorial demarcation was aimed at granting a certain degree of autonomy to various ethnic groups. The Yakut Autonomous Soviet Socialist Republic was established on 27 April 1922 on the territory of Yakutsk province.

Its creation was the result of the Soviet government's desire to consider national peculiarities and promote the development of regions with a predominantly indigenous population. The Bashkir ASSR, in turn, was formed on 14 June 1922 as a result of the merger of the Bashkir Soviet Republic and the Ufa province.[21] Both republics received a certain degree of autonomy within the RSFSR, which made it possible to take into account the ethnic and cultural peculiarities of the regions. However, the degree of real autonomy was limited by the centralised policy of the Soviet state.

In the People's Republic of China, there are five autonomous regions established for national minorities. The Tibet Autonomous Region was established in 1965 and the Xinjiang Uygur Autonomous Region in 1955. The purpose of these autonomies was to recognise ethnic diversity and provide a degree of self-government. In practice, however, the Chinese central government retains considerable control over these regions, and the degree of real autonomy is often limited. Spain is a highly decentralised state where autonomous communities have significant powers. Catalonia and the Basque Country have the own parliaments, governments, and official languages along with Spanish. The historical, cultural, and linguistic characteristics of these regions have been the basis for granting these regions broad autonomy. However, the desire for greater independence, especially in Catalonia, has led to political tensions between regional and central authorities.

Italy has five autonomous regions, among these regions are Sicily and Trentino-Alto Adige. Sicily was granted autonomous status in 1946 in an effort to accommodate its cultural characteristics and economic needs. Trentino-Alto Adige, located in the north of the country, is characterised by a significant German-speaking population, which was also the basis for its autonomy. These regions have enhanced legislative and administrative powers that allow for local specificities.[22] Thus, the experience of different countries in creating autonomous regions demonstrates the diversity of approaches to the governance of multinational states. Despite differences in historical and political contexts, the common goal of such autonomies is to recognise and respect cultural and ethnic diversity, and to strive to ensure harmonious coexistence of different peoples within a sin-

21 A. KOROBEINIKOV, *Yakut autonomy: The postimperial political projects of the Sakha intellectuals, 1905–1922*, in *European Review of History: Revue Européenne d'histoire*, 2023, 30(6), pp. 958–986.

22 O. SHARIPOV, *Yakutia, Tatarstan, Chuvashia: What other Russian regions can Ukraine acknowledge as occupied?* https://mind.ua/en/publications/20250469-yakutia-tatarstan-chuvashia-what-other-russian-regions-can-ukraine-acknowledge-as-occupied

gle state.

The process of establishing autonomous regions depends on a variety of factors, among which political, economic, social and geographical aspects are key. In different countries, the degree of autonomy of regions is determined by the balance between centralised administration and the aspirations of the local population for self-government. The political factor plays a decisive role in the process of autonomisation. In countries with strictly centralised power, such as China, autonomous regions formally have self-government, but are actually controlled by the central government. In the USSR, autonomies also existed under a single state policy, subordinate to Moscow. In contrast, Spain and Italy give the autonomous regions considerable powers, including legislative initiative and financial autonomy.

The economic factor relates to a region's level of self-sufficiency.[23] For example, Catalonia is one of Spain's economically developed regions, which reinforces its desire for independence. At the same time, autonomous regions in China, such as Tibet and Xinjiang, are strategically important but depend on economic support from the central government.[24] The social factor includes national identity and cultural rights. In ethnically diverse countries, autonomisation is often a tool for preserving national identity. In Spain (Catalonia, Basque Country) and Italy (Trentino-Alto Adige), autonomy implies official status for local languages and cultural rights.

In the USSR, national autonomies were also created to take into account ethnic characteristics, but the policies were regulated within the framework of a common ideology. The geographical factor influences the degree of autonomy through territorial remoteness and natural conditions. For example, Tibet and Yakutia are remote regions with harsh climatic conditions, which makes it difficult for these regions to integrate into the general state processes. In contrast, Catalonia and the Basque Country have a convenient geographical location, which

---

23 S. ABBASOVA, V. İSMAYILOV, N. TRUSOVA, *Problems of financing the state budget deficit,* in *Scientific Bulletin of Mukachevo State University. Series Economics*, 2023, 10(4), pp. 9–19.

24 M. ORLENKO, M. DYOMIN, Y. IVASHKO, A. DMYTRENKO, P. CHANG, *Rational and aesthetic principles of form-making in traditional chinese architecture as the basis of restoration activities,* in *International Journal of Conservation Science*, 2020, 11(2), pp. 499–512.

favours the economic and political independence.

The creation of autonomous regions requires a clear legal and administrative framework regulating the status, functions, and relations with the central government. In different countries, autonomies are formalised through charters, legislation and political agreements defining the powers and degree of independence. The process of creating charters (constitutions) of autonomous regions varies depending on the political system of the state. In the USSR, the charters of autonomies were developed within the framework of the state-wide ideology and had to comply with the Constitution of the USSR and the Union Republics.[25]

In Spain, autonomous communities such as Catalonia and the Basque Country developed the Statutes of Autonomy, which were approved by referendums and enshrined in the Constitution. In Italy, the Statutes of Autonomy of autonomous regions are also approved by the national parliament, but allow considerable freedom in local self-government. Legislative regulation of autonomous regions includes constitutions, special regulations and agreements between central and local authorities.

In the USSR, the basic laws of autonomous republics included the Constitution of the USSR, which defined the framework of autonomy; the Constitutions of the Union republics within which the autonomous entities operated; and the Resolutions of the Council of People's Commissars and the Politburo, which regulated the activities of autonomous regions. In China, autonomous regions are subject to the Law on National Regional Autonomy, but in reality, the powers are limited. In Spain, the 1978 Constitution enshrined the autonomous rights of regions, and in Italy the Statutes of Autonomy are part of constitutional law.

In different countries, autonomous entities have faced contradiction between local elites and the central government. In the USSR, the governing bodies of autonomies were staffed by party nomenclature and real self-government was limited. In China, Beijing appoints key autonomy leaders despite formal repre-

25 N. APAKHAYEV, A. B. OMAROVA, S. KUSSAINOV, G. G. NURAHMETOVA, Y. A. BURIBAYEV, Z. A. KHAMZINA, B. KUANDYKOV, S. V. TLEPINA, N. S. KALA, *Review on the outer space legislation: Problems and prospects,* in *Statute Law Review*, 2018, 39(3), pp. 258–265.

sentation of local cadres. In Spain and Italy, regional leaders have considerable power, forming local governments and parliaments, which strengthens autonomy.

The socio-economic structure of autonomous regions depends on the specifics of the region, the level of economic development and interaction with the central government. Autonomous regions may have specific economic models oriented towards local resources and specific economic activities. The governance structure of autonomous regions includes legislative, executive and judicial bodies. In the USSR, these were the Supreme Soviets and Councils of Ministers of the autonomous republics, subordinate to the Union government. In Spain and Italy, autonomous regions have the own parliaments, governments and judicial systems with considerable powers. In China, although there are formal autonomous bodies, key decisions are made by the central government. The economies of autonomies may be orientated towards agriculture, industry, tourism, or resource extraction.

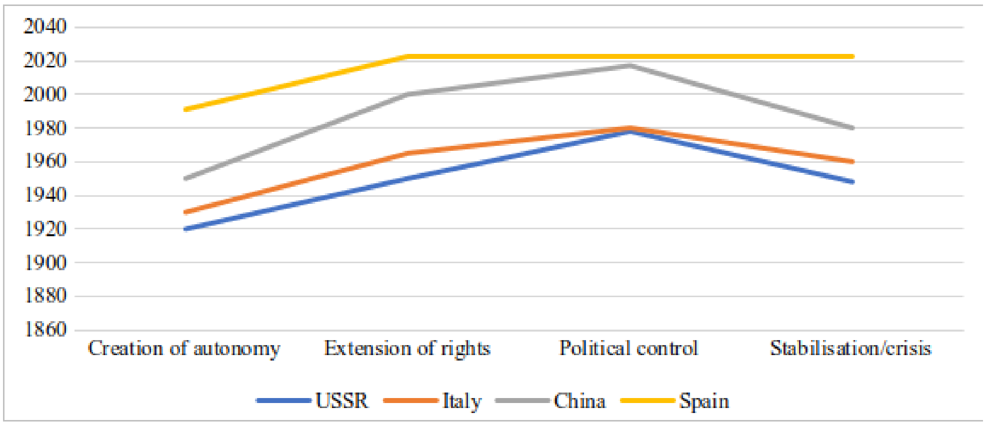
For example, Catalonia is the industrial and financial centre of Spain, which makes it economically self-sufficient, Tibet is a region dependent on subsidies from the central government, Sicily develops through tourism and agriculture. In the USSR, autonomous republics were included in the centrally planned economy, and the economic activity depended on the Union's five-year plans. Autonomous regions interact with central governments in different ways. In countries with strong centralisation (China, USSR) autonomies play more of a decorative role, whereas in democratic states (Spain, Italy) regions have broad powers and can even conduct independent international policy within the framework of constitutional law.

Autonomous regions in different countries have undergone a complex evolution, reflecting changes in political systems, economic realities and international relations. The status has been shaped in response to historical challenges, such as national liberation movements, state reforms or global political transformations. In the USSR, autonomies were initially created as part of a policy of korenisation aimed at strengthening national identity.

However, with the strengthening of centralism, the independence became formal, and the real management was carried out from Moscow. In the 1990s, the collapse of the USSR led to fundamental changes – many autonomous republics became independent states (e.g., Kazakhstan, Kyrgyzstan), while others retained the autonomous status under the new political conditions (Tatarstan, Yakutia).[26]

In China, autonomous regions (e.g., Tibet, Xinjiang) were created as part of a strategy to govern a multi-ethnic state. However, despite formally expanded powers, real autonomy remains limited. Beijing's authorities tightly control the internal politics of these regions, suppressing any manifestations of separatism. In democratic countries, autonomies have more real opportunities for self-governance. In Spain, after Franco's dictatorship, the Statute of Autonomy was adopted, which expanded the rights of Catalonia, the Basque Country and other regions. However, Catalonia's attempts to achieve full independence led to a crisis, which shows the complex boundaries of autonomy in modern states.

The example of Italy demonstrates a more sustainable model: autonomous regions such as Trentino-Alto Adige and Sicily have been given significant economic and legislative powers, allowing to develop successfully as part of the state. Thus, the evolution of autonomies shows that the status depends on the political will of the central government, international factors and the internal stability of the region. In some countries, autonomies develop and strengthen, while in others, the autonomies are lost or become objects of political control (Figure 1).



26 G. KUSHENOVA, A. AUANASOVA, A. MAXUTOVA, A. KAIRULLINA, *Kazakh History in British Periodicals: Interpretations and Historical Accuracy*, in *Bylye Gody*, 2025, 20(1), pp. 129–137.

Figure 1. Historical evolution of autonomies in the USSR, China, Spain, and Italy

Source: compiled by the authors based on Boryslavska,[27] Shubert et al.[28]

The graph shows that the evolution of autonomies depends on the political system of the state. In the USSR and China, autonomies lost real independence over time due to increased centralism, while in Spain and Italy, the autonomies gained stable rights and expanded powers. However, even in democratic countries, crises are possible, as in the case of Catalonia.

The works of leading historians such as Kurmanov,[29] Dzhunushalieva,[30] Kenensariev,[31] Dzhamgerchinov[32] are important sources for a deep understanding of the processes that took place during the formation of Kyrgyz statehood. The studies allow reconstructing the historical context, analysing key political and socio-economic factors, and identifying patterns characteristic of the formation of autonomous regions in Central Asia.

Kurmanov examined the formation of Kyrgyz statehood in the twentieth century through the prism of political decisions of the Soviet leadership. The author analyses the influence of the Bolshevik policy of korenisation, the principles of administrative-territorial division and the role of local elites in the formation of autonomous structures. Kurmanov concludes that the creation of the Kara-Kyrgyz Autonomous Oblast was the result of a complex interaction bet-

27 O. BORYSLAVSKA, *Territorial autonomy, regionalization and problems of political secession in Europe*, in *Ukrainian Journal of Constitutional Law*, 2017, 5(4), pp. 11–17.

28 A. SHUBERT, C. D. SMITH, J. F. O'CALLAGHAN, R. J. HARRISON, M. J. VIGUERA, J. V. GINÉS, J. S. RICHARDSON, H. G. KOENIGSBERGER, R. CARR, V. RODRIGUEZ, *Spain*, in *Encyclopedia Britannica*, 2025.

29 Z. KURMANOV, *The fight of political elites of Kyrgyzstan during the period of revival of the national statehood of the Kyrgyz people: 1917–1927*. National Academy of Sciences of the Kyrgyz Republic, 1997.

30 G. DZHUNUSHALIEVA, *Cultural policy of the state in Kyrgyzstan: Stages and ways of implementation: Second half of XIX century – late 30s XX century*. Kyrgyz-Russian Slavic University, 2005.

31 T. KENENSARIEV, *Istoriya kolonial'noy politiki russkogo samoderzhaviya na okrainakh: Ekonomicheskaya politika Rossii v Kyrgyzstane vo 2-y polovine XIX – nach. XX vv.* LAMBERT Academic Publishing, 2012.

32 B. DZHAMGERCHINOV, *Istoriya Kirgizskoy SSR / History of the Kyrgyz SSR*. Mektep, 1979.

ween internal national movements and external administrative policies of Moscow. Dzhunushalieva, in the work, studied in detail the social and cultural processes in Kyrgyzstan in the late XIX-early XX century. The research showed how the state policy in the sphere of culture, education and national identity influenced the processes of autonomy formation. Especially important is the conclusion that cultural transformations largely predetermined the success of administrative reforms and the formation of national identity.

Kenensariev,[33] in the work, considered the formation of Kyrgyz statehood from a long-term perspective, starting from the traditional tribal structure and ending with modern political institutions. In the context of the creation of an autonomous oblast, the author emphasised the importance of Kyrgyzstan's geopolitical position as well as economic factors such as the development of infrastructure and the changing economic structure in the 1920s.

Dzhamgerchinov[34] analysed the evolution of the historiography of Kyrgyzstan in a study. The work is useful in that it allows comparing different approaches to the study of nationhood, identifying methodological differences and determining key issues that remain debatable. In particular, the author emphasises that Soviet historiography has often glossed over the role of local national movements, while contemporary research seeks to restore balance in the interpretation of these events.

A comparative analysis of the sources shows that all these studies point out different aspects of the formation of Kyrgyz statehood. Kurmanov[35] emphasises administrative reforms and Moscow's policies, Dzhunushalieva[36] focuses on cultural and social factors, Kenensariev – on economic and geopolitical conditions,

33 T. KENENSARIEV, *Istoriya kolonial'noy politiki russkogo samoderzhaviya na okrainakh: Ekonomicheskaya politika Rossii v Kyrgyzstane vo 2-y polovine XIX – nach. XX vv.* LAMBERT Academic Publishing, 2012.

34 B. DZHAMGERCHINOV, *Istoriya Kirgizskoy SSR / History of the Kyrgyz SSR*. Mektep, 1979.

35 Z. KURMANOV, *The fight of political elites of Kyrgyzstan during the period of revival of the national statehood of the Kyrgyz people: 1917–1927*. National Academy of Sciences of the Kyrgyz Republic, 1997.

36 G. DZHUNUSHALIEVA, *Cultural policy of the state in Kyrgyzstan: Stages and ways of implementation: Second half of XIX century – late 30s XX century*. Kyrgyz-Russian Slavic University, 2005.

and Dzhamgerchinov – on the evolution of historical knowledge on this topic. This comprehensive approach allows for a holistic view of how and why the Kara-Kyrgyz Autonomous Oblast emerged, as well as what factors played a crucial role in this process.

The historical experience of forming autonomous oblasts, including the Kara-Kyrgyz Autonomous Oblast, as well as international examples of autonomous governance, allow identifying several key aspects that may be useful for further improvement of the administrative-territorial structure of Kyrgyzstan. In modern conditions, the country faces new challenges, such as the need for decentralisation, efficient resource allocation and ensuring sustainable socio-economic development of the regions. One of the main directions of reforms can be strengthening the administrative autonomy of the regions. History shows that excessive centralisation of power leads to a decrease in governability, as local peculiarities and needs are not taken into account. Transferring more powers to regional and local authorities will make it possible to improve the efficiency of decision-making and adapt management to the specific conditions of each region.

Of particular importance is the right of regions to independently develop development strategies, allocate budget funds and shape local social policy.[37,38] However, the effective functioning of such a system requires clear coordination with the central government to avoid fragmentation and possible administrative conflicts. Another important aspect is the economic development of autonomous regions, which should be based on the resource and infrastructure capabilities. Historical analysis shows that successful autonomies in different countries were formed with an economic base capable of ensuring the sustainable development. In this context, a special role is played by the development of local entrepreneurship, attraction of investments, modernisation of transport

---

37 M. DYOMIN, Y. IVASHKO, O. IVASHKO, K. KUŚNIERZ, T. KUZMENKO, *Development trends and problems of large ukrainian historical cities in the twentieth and twenty-first century: Case study of urban tendencies and problems of revitalization of an industrial district,* in *Wiadomosci Konserwatorskie*, 2021, 2021(65), pp. 26–36.

38 Y. IVASHKO, A. DMYTRENKO, K. PAPRZYCA, M. KRUPA, T. KOZŁOWSKI, *Problems of historical cities heritage preservation: Chernihiv Art Nouveau buildings,* in *International Journal of Conservation Science*, 2020, 11(4), pp. 953–964.

infrastructure and creation of conditions for self-sufficiency of regions.[39] Kyrgyzstan should study the examples of successful autonomous entities, such as Catalonia in Spain or Trentino-Alto-Adige in Italy, where developed economies have allowed regions not only to strengthen the autonomy but also to become important economic centres of the country.

Social factors also play a crucial role in the issue of autonomy. Kyrgyzstan has historically had a multi-ethnic population, and issues of ethnocultural identity have a significant impact on socio-political processes.[40] International experience shows that the successful functioning of autonomous entities is possible only if the interests of all ethnic and social groups are taken into account.[41] This requires effective language and education policies, the protection of cultural rights and the participation of local communities in the governance process. For example, in autonomous regions of China, such as Xinjiang and Tibet, programmes to support national languages and cultural traditions play a significant role in minimising social conflicts. Kyrgyzstan's geographical conditions should also be considered when designing a regional development strategy. The country has a complex topography and uneven population distribution, which creates additional challenges for territorial management.

The experience of other countries shows that in such conditions it is necessary to develop a transport network, digital infrastructure and new logistics solutions that allow effectively linking remote regions with economic centres.[42] This is especially relevant for rural and mountainous areas, where limited access to infrastructure hinders economic development and contributes to population outflow. One of the possible areas of reform could be a revision of the admini-

39 R. ZHANBULATOVA, M. ZHIYENBAYEV, M. DYUSEMBEKOVA, R. NURTAZINA, *The energy vector of Kazakhstan-Russia relations in the context of global changes on the international energy market,* in *Central Asia and the Caucasus*, 2020, 21(2), pp. 121–130.

40 D. OSMONOVA, B. KOSHBAKOVA, T. OMUROVA, A. MOLDOBAEVA, Z. KASKARBAYEVA, *The Role of Religion in Shaping the Socio-Cultural Identity of the Kyrgyz and Kazakhs,* in *Pharos Journal of Theology*, 2025, 106(3), pp. 1–13.

41 K. S. L. P. PERBAWA, W. N. HANUM, A. K. ATABEKOV, *Industrialization of Election Infringement in Simultaneous Elections: Lessons from Sweden,* in *Journal of Human Rights Culture and Legal System*, 2024, 4(2), pp. 477–509.

42 N. MUSAYEVA, M. ALIYEVA, L. GASIMOVA, G. BAYRAMOVA, *The Role of Blockchain Technology in Ensuring Transparency, Trust, and Auditing in Financial Markets: Prospects and Challenges,* in *Operations Research Forum*, 2025, 6(4), article no. 167.

strative division of the country. In Kyrgyzstan, the existing system of regional administration is largely inherited from the Soviet model, which does not always correspond to modern socio-economic realities.[43] The introduction of new administrative formats, such as municipal districts with expanded powers, can contribute to more effective management of territories. For example, Germany has a successful system of land self-governance, in which each federal entity has significant autonomy, but remains part of the unified state system.

In order to implement all these recommendations, it is necessary to develop a clear legislative framework regulating the issues of autonomy and local self-government. History shows that any changes in the administrative structure require careful legal elaboration to avoid legal gaps and possible conflicts of competences.[44] Kyrgyzstan already has laws regulating local self-governance, but these laws need to be modernised to meet modern challenges. This includes clarifying the status of regional authorities, consolidating the financial independence and establishing mechanisms for interaction with the central government.

An important tool for improving autonomous governance can be the introduction of modern technologies. The digitalisation of administrative processes will make it possible to increase the transparency of governance, reduce the level of bureaucracy and corruption, and simplify the interaction of citizens with government agencies. The experience of countries that are actively implementing e-government, such as Estonia or South Korea, shows that digital technologies can significantly improve the efficiency of government bodies and strengthen public trust in public institutions.

Thus, the analysis of historical experience and international practices of autonomous governance allows formulating several recommendations that may be useful for Kyrgyzstan. Strengthening administrative autonomy, developing regional economy, considering ethnocultural factors, modernising infrastructure, revising the administrative division, improving the legislative framework and introducing digital technologies – all these measures can contribute to improving

43 N. K. SARTBEKOVA, A. DYUSHENALIEVA, J. YULONG, W. RUI, *Musical culture of the Kyrgyz people,* in *Asian European Music Research Journal*, 2024, 13, pp. 41–52.

44 V. ISMAYILOV, U. HASANZADE, M. MEHDIZADE, V. MAMMADLI, M. ORUJOVA, *The Model Of Development Of Tourism Activity In The Region Of Azerbaijan,* in *International Journal of Environmental Sciences*, 2025, 11(3S), pp. 330–338.

the efficiency of governance and sustainable development of the regions. The optimal model of autonomous structure should take into account both historical traditions and modern realities, ensuring a balance between the interests of the central government and the regions.

4. Discussion

The conducted research allowed assessing the organisational aspects of the formation of autonomous regions, considering historical experience and international comparative perspectives. It was revealed that the autonomisation of regions is a complex process, which is conditioned by political, economic and social factors. These results are consistent with the study of Auanasova et al.,[45] who analysed the influence of political processes on the autonomisation of territories in Central Asia. Similar patterns have been recorded in other regions, in particular in the study by Struve,[46] who studied autonomous entities in the context of Qing dynasty politics. The analysis showed that the creation of autonomous regions was often the result of political compromise between the central government and local groups. This is consistent with the findings of Diamond,[47] who examined democratic regression and its impact on autonomous entities.

At the same time, the work of Alessi[48] focused on a comparative analysis of different countries and regions, which allows comparing different approaches to digital transformation and information security. The study also uses a comparative approach, as it is possible to assess the effectiveness of Kazakhstan's national information security strategies compared to other countries, which allows for greater accuracy and depth of analysis. In the study by Bean,[49] the author analy-

45 A. AUANASOVA, E. NURPEISOV, K. AUANASSOVA, G. KUSHENOVA, N. MUKHLISSOV, *The history of the Alash party in the context of the impact on the processes of constitutional acts*, in *Ancient Asia*, 2021, 12, pp. 1–8.

46 L. STRUVE, *The Qing formation in world-historical time*. Harvard University Asia Center, 2020.

47 L. DIAMOND, *Democratic regression in comparative perspective: Scope, methods, and causes*, in *Democratic Regressions in Asia*, edited by Thomas Pepinsky, Routledge, 2022, pp. 22–42.

48 N. P. ALESSI, *Joint bodies – A key factor for successful autonomous systems? The cases of the Italian special regions and the Åland islands*, in *Journal of Autonomy and Security Studies*, 2021, 5(1), pp. 8–25.

49 R. BEAN, *Comparative industrial relations: An introduction to cross-national perspectives*. Routledge, 1985.

sed the impact of autonomy on labour markets, where it was noted that increased powers of regional administrations led to greater flexibility in economic policy, which in turn contributed to employment growth and an improved business climate.

Similar conclusions are drawn in the studies of Aranda and Kölling,[50] and Arban,[51] which examined the impact of autonomous decisions on economic dynamics. These studies are consistent with the results obtained, as in the analysed cases there was an economic growth of autonomous regions due to the flexibility of local governance, which allowed a faster adaptation to changing economic conditions.

Similar trends were found in the work of Flanagan et al.,[52] who studied the impact of regional policy on the economic development of autonomous regions. The research shows that autonomous regions are able to attract investments more efficiently and develop strategies of economic growth oriented to local needs. In this sense, the economic autonomy of the region offers significant advantages compared to centralised governance models. The results confirm this trend: regions with autonomy demonstrated sustainable economic growth due to adaptive management mechanisms.

Apart from economic factors, ethnic identity also remains an important element of autonomisation. A study by Guan et al.[53] examined interethnic relations in Chinese autonomous regions, where it was found that national identity and interethnic interaction play a key role in the stability of self-governance. In the work of Taddeo and Blanchard,[54] the authors analysed the historical and in-

50 J. T. ARANDA, M. KÖLLING, *Spain (Kingdom of Spain): A union of autonomous communities*, in *The Forum of Federations Handbook of Federal Countries 2020*, edited by Michael Burgess, John Pinder, Palgrave Macmillan, 2020, pp. 329–340.

51 E. ARBAN, *Sovereignty and autonomy of constituent units in federal and regional systems: A case study of Italy*, in *Beyond Autonomy*, edited by Sergio Bartole, Brill, 2021, pp. 47–66.

52 K. FLANAGAN, E. UYARRA, I. WANZENBÖCK, *Towards a problem-oriented regional industrial policy: Possibilities for public intervention in framing, valuation and market formation*, in *Regional Studies*, 2023, 57(6), pp. 998–1010.

53 T. GUAN, N. LUO, L. WANG, *Ethnic identity, Chinese national identity, and intergroup attitudes of adolescents from an ethnic autonomous region in China*, in *Identity*, 2021, 22(2), pp. 135–149.

54 M. TADDEO, A. BLANCHARD, *A comparative analysis of the definitions of autonomous weapons*, in *The 2022 Yearbook of the Digital Governance Research Group*, Springer, 2023, pp. 57–

ternational aspects of autonomy development and governance processes. This is consistent with the study as Kazakhstan, as part of global technological and political processes, needs to adapt to new conditions related to digital transformation and information security. The study also explores how changes in these areas can affect national security strategies, governance practices and international co-operation.

In Latin American countries, as showed in the study by Acuña,[55] autonomisation processes were often influenced by pedagogical and educational initiatives. In this region, autonomisation was often associated with attempts to reform educational systems, which had a significant impact on the political activity of the population and the development of self-government. In the cases under consideration, this aspect played a less significant role, which indicates the difference in the processes of autonomisation depending on the historical and cultural context.

Thus, economic factors have a strong influence on the success of autonomisation, which is confirmed both by previous studies and the results obtained. Ethnic factors also play an important role, but the influence may vary from region to region. That said, autonomous processes may be driven by different reasons in different parts of the world, for example, in Latin America educational reforms played a significant role, while in China and other countries the ethnic factor was paramount.

One of the key aspects that distinguish the findings from those of other researchers is the nature of the interaction between autonomous regions and the central government. For example, in the work of Vasudevan,[56] the author looked at the development of autonomy and governance structures. This is also important for the study, as digital transformation can contribute to the development of autonomy in the field of information security, in particular through improving the effectiveness of the management of government structures in the context of digitalisation. Also, important is the sociocultural context that has been conside-

---

79.

55 F. ACUÑA, *An autonomous teacher subject as a force of pedagogical renewal: Two historical moments of activation of the teacher's movement in Chile*, in *Espacio, Tiempo y Educación*, 2021, 8(2), pp. 105–124.

56 A. VASUDEVAN, *The autonomous city: A history of urban squatting*. Verso Books, 2023.

red in the paper. The study also takes into account sociocultural factors, as the introduction of digital transformation and changes in information security has a direct impact on the social and cultural situation in Kazakhstan.

However, the results obtained indicate that in real conditions, the process of autonomisation is often accompanied by conflicts between local and central administrations. The main reasons for this are contradictions in the distribution of power, budgetary resources and strategic directions of regional development. Instead of harmonious coexistence, autonomous regions often face restrictions imposed by the central government, which complicates the activities and leads to administrative confrontations. Another important aspect is the efficiency of governance in different types of autonomies. The study showed that autonomous urban entities demonstrate a higher level of self-governance compared to large regional autonomies. This is explained by the fact that cities have more compact infrastructure, clear management mechanisms and the ability to respond quickly to challenges.

However, the results indicate a different trend; large autonomous regions tend to have more resources, which allows ensuring stable development. This may be due to the fact that large regions have more opportunities to attract investment, develop economic initiatives and diversify budget revenues. In addition, large autonomous regions may have more powerful administrative structures capable of maintaining effective self-governance even in conditions of limited interaction with the central government. A separate approach to analysing autonomy is presented in a technological context. Spector[57] focused on the socio-economic aspects of autonomy creation, in particular the importance of fiscal decentralisation, infrastructure development and economic self-sufficiency, fully correlates with the results of the PESTEL analysis conducted in this study.

The authors also examine the effectiveness of governance structures in different autonomies, which helps to confirm the relevance of the recommendations put forward in this paper to modernise the governance vertical. Analysing the Chinese model of autonomy, the study draws attention to the hybrid nature of the Chinese administrative system, where autonomy is often combined with

57 H. SPECTOR, *Autonomy and rights*, in *The Routledge Handbook of Autonomy*, edited by Joel Anderson, Axel Honneth, Routledge, 2022, pp. 313–323.

strict centralised control. This has deepened the comparative part of this study, in which the Guangxi Zhuang Autonomous Region emerges as an example of formal autonomy with limited actual self-governance, which contrasts with the more flexible European models. Thus, the findings are not necessarily consistent with previous studies.

The main difference lies in the complexity of the relationship between autonomous regions and the central government, which manifests itself in frequent conflicts and limitations in the realisation of self-governing functions. In addition, large autonomous regions have more resources for stable development than autonomous cities, which contradicts some previous findings. It is also worth noting that modern research is expanding the understanding of autonomy, including the technological dimension, which may be a promising direction for further research developments.

Irawan et al.[58] and Tusemererwa[59] investigated new autonomous regions where autonomy is seen as a tool for sustainable development. These results are partially supported by the findings of O'Donnell,[60] who analysed the Argentine autonomisation system and its relationship with bureaucratic authoritarianism. The study by Perkins et al.[61] showed that marketing co-operation plays a significant role in the development of autonomous regions, especially in the tourism sector. This may explain the economic success of some autonomous areas that have actively utilised strategic partnerships.

58 B. IRAWAN, P. AKBAR, E. P. PURNOMO, A. NURMANDI, *Development planning to accelerate Sustainable Development Goals (SDGs) in Mahakam Ulu Districts as a new autonomous region*, in *Masyarakat, Kebudayaan Dan Politik*, 2021, 34(2), pp. 184–195.

59 L. TUSEMERERWA, *Can administrative autonomy be enough? Experiences of administrative autonomy as a political and administrative asset in a Swedish municipality*. Lund University, 2020.

60 G. O'DONNELL, *Bureaucratic authoritarianism: Argentina, 1966–1973, in comparative perspective*. University of California Press, 2023.

61 R. PERKINS, C. KHOO-LATTIMORE, C. ARCODIA, *Collaboration in marketing regional tourism destinations: Constructing a business cluster formation framework through participatory action research*, in *Journal of Hospitality and Tourism Management*, 2021, 46, pp. 347–359.

From an ecological perspective, Rohe[62] and Parchomovsky and Stein[63] identified that autonomous regions can have significant advantages in the development of countries. The findings partially support this, as in many autonomous regions the introduction of localised energy initiatives has contributed to the economic growth. Buccianti[64] and Duishembieva[65] show the importance of historical and legal mechanisms in the process of granting autonomous status to regions within unitary states, which fully coincides with the conclusions about the legal specificity of the creation of the Kara-Kyrgyz Autonomous Oblast in the context of the policy of Korenisation. Killinger,[66] in the research, emphasises the role of national identity and regional elites as key factors in the decentralisation process, which was also confirmed in this analysis, where ethnocultural transformations and the participation of local leaders were identified as decisive in the formation of autonomy.

The study allowed assessing the organisational aspects of the formation of autonomous regions in different countries. It was revealed that autonomisation is a complex process that depends on political, economic and sociocultural factors. The results obtained are consistent with a number of international studies, while showing certain differences. The study confirmed the importance of a comprehensive approach to the study of autonomisation, which has implications for the development of effective management strategies.

5. Conclusions

The study found that the process of formation of autonomous oblasts is a complex and multifactorial phenomenon that depends on political, economic, social and geographical conditions. The analysis of the historical processes of

62 S. ROHE, *The regional facet of a global innovation system: Exploring the spatiality of resource formation in the value chain for onshore wind energy*, in *Environmental Innovation and Societal Transitions*, 2020, 36, pp. 331–344.

63 G. PARCHOMOVSKY, A. STEIN, *Autonomy*, in *University of Toronto Law Journal*, 2020, 71(1), pp. 61–90.

64 G. L. BUCCIANTI, *Private autonomy and family public policy in Italy*, in *Białostockie Studia Prawnicze*, 2022, 27(3), pp. 227–240.

65 J. DUISHEMBIEVA, *'The Kara Kirghiz must develop separately': Ishenaaly Arabaev (1881–1933) and his project of the Kyrgyz nation*, in *Creating Culture in (Post) Socialist Central Asia*, edited by Marlene Laruelle, Palgrave Macmillan, 2020, pp. 13–46.

66 C. L. KILLINGER. *The history of Italy*. Bloomsbury Publishing, 2024.

creation of the Kara-Kyrgyz Autonomous Oblast showed that its formation was the result of the interaction of the policy of the central government, national movements and regional socio-economic characteristics. It was confirmed that the policy of Korenisation and administrative-territorial reforms in the USSR significantly influenced the formation of the autonomy, laying the foundation for the further development of statehood.

A comparative analysis of the formation of autonomous regions in different countries demonstrated that the level of autonomy depends on the degree of centralisation of power, historical prerequisites, the level of economic development and the national composition of the population. The study revealed that in countries with a high level of political control, autonomous regions have less autonomy, while in decentralised systems, such regions are given greater opportunities for self-governance. In the case of the Kara-Kyrgyz Autonomous Oblast, as in other autonomies of the USSR, autonomy was administrative rather than real, which limited its influence on key decisions.

The qualitative indicators of the study include an in-depth analysis of the historical prerequisites for the creation of the autonomy, identification of the key factors that contributed to its formation, and an assessment of the effectiveness of political decisions during this period. It was found that the socio-economic structure of the autonomous regions was largely determined by the political priorities of the central government, which influenced the development of local governance, economy and social institutions. The practical results of the study can be used to assess the current trends of decentralisation and the formation of autonomies in different countries. These results also allow drawing conclusions about the degree of effectiveness of political strategies aimed at granting autonomous regions greater autonomy.

Based on the results obtained, recommendations aimed at improving the functioning of autonomous regions have been developed. In particular, it is proposed to improve administrative management mechanisms, strengthen the economic independence of the regions, develop local infrastructure and create effective institutions for interaction between the central government and the regions. It is also recommended to take into account historical experience in the development of modern reforms aimed at strengthening regional self-governance.

One of the main directions for further research is to study the impact of modern political and economic changes on autonomous regions, as well as to analyse the effectiveness of existing models of autonomous governance. Additionally, the issues of social stability and identity of the population of the autonomous regions should be considered, which will allow for a better understanding of the needs and development opportunities. A limitation of the study is the availability of archival sources, as many materials from the Soviet period remain poorly studied or classified. There were also certain difficulties in conducting comparative analyses, as each region has unique historical and political conditions, which makes it difficult to draw direct parallels.

Overall, the study has provided a comprehensive understanding of the processes of formation of autonomous regions, the characteristics, and the factors influencing the development. The results obtained are valuable from both scientific and practical points of view, as these findings can be used to analyse modern decentralisation processes and the development of regional self-governance.

Inna Tukalenko
Associate Professor, PhD at the Department of Politology – Taras Shevchenko National University of Kyiv
i-tukalenko@outlook.com

Iaroslav Teleshun
Associate Professor, PhD at the Department of Politology – Taras Shevchenko National University of Kyiv
i_teleshun@hotmail.com

Viktoriia Petrenko
Associate Professor at the Department of Politology – Taras Shevchenko National University of Kyiv
Academy of Personnel Management
viktoriiap580@gmail.com

Iryna Liashchenko
Associate Professor, PhD at the Department of Politology – Taras Shevchenko National University of Kyiv
i.liashchenko@outlook.com

Tetiana Chervinska
Associate Professor, PhD at the Department of Theory and History of Sociology – Taras Shevchenko National University of Kyiv
tet-chervinska22@hotmail.com

Transformation of political regimes in Ukraine and Russia in the context of democracy building and consolidation of authoritarianism

Abstract

The purpose of the study was to identify the differences in political development between Ukraine and Russia to understand the factors behind the departure from democratic traditions. The methods employed included content analysis of the media and statistical analysis of survey data. The findings of the study revealed that the demand for democracy in Ukraine was greater than in Russia, as almost 43% of Ukrainians expressed absolute confidence in the significance of democracy, while only 23% of Russians did. It was found that the period of 1994-2007 in Ukraine was characterised by both attempts to introduce authoritarian aspects into the life of the state and the peak of the increase in civil liberties and political rights after the Orange Revolution. At the same time, Russia experienced a complete authoritarian breakdown, especially after the 2003 parliamentary elections, where the United Russia party won two-thirds of the seats, including through administrative resources. The development of civil society organisations was also highlighted as an aspect of political regime formation. Their overall sustainability in both Ukraine and Russia was stagnant in 2005-2014. However, after the beginning of Russia's aggression against Ukraine in 2014, the resilience of Ukrainian civil society organisations has considerably improved, while in Russia it has declined, as the study findings showed. Thus, the post-independence period of both countries did not have substantial differences. The findings of this study can be used in shaping political strategies and educational programmes in the field of international relations.

KEYWORDS: Civil Society – Parliamentary Opposition – Change of Power – Public Control – Suppression of Freedom of Thought

1. Introduction

The subject of transformation of political regimes is one of the fundamental issues in contemporary political studies, especially considering the active development of democracy and the considerable number of authoritarian regimes. The scientific discourse on this issue is significant because of the constant evolution of the political factor in the globalised world and the significance of transformation for the stability, security, and well-being of societies. On the one hand, democratisation is a process of gradual institutionalisation of political freedoms, equality, civil society, etc., which increases the level of human rights protection. On the other hand, the tendency to strengthen authoritarianism is a challenge for both small democratic states and the international political system overall.

The subject of political development of Ukraine and Russia is extremely relevant in the current context, as both countries had a part of common history within the Union of Soviet Socialist Republics (USSR), but in 1991-2024 had completely different vectors of political development. Society in Ukraine, both historically and since gaining independence, has sought to establish democratic values and has been consciously moving towards European integration. However, Russian society, considering the specific historical features of its development, focused on consolidating authoritarianism and a regime that consistently destroyed or transformed democratic institutions in its own way.[1] Therefore, the study of the transformation processes in Ukraine and Russia is critically significant in terms of understanding how radically different political strategies affect stability, the development of international relations, and the strengthening of positions in the international arena, which is especially relevant after Russia's full-scale invasion of Ukraine in 2022.

An additional significant aspect in the study of this subject is the role of international cooperation in the context of supporting democratic and resisting totalitarian or authoritarian regimes. The strengthening of authoritarian regimes can be a grave concern for democratic states, leading to sanctions, diplomatic isolation, etc.[2] Therewith, democratic governments, by virtue of their beliefs and international legal obligations, can receive extensive financial, political, and military support from analogous political regimes, which demonstrates the significance of democracy as a factor in the development of international relations. Therefore, the study of political regime transformation allows understanding why some governments fall into deep isolation, while others embark on new democratic transformations. Finally, the investigation of the transformation of political regimes in Ukraine and Russia is essential for predicting the development of the geopolitical situation in Eastern Europe. The success of Ukraine's democratic transformation can serve as a prominent example for other post-Soviet countries seeking to break away from their authoritarian legacy.[3] At the same time, further consolidation of authoritarianism in Russia could lead to increased threats to international security and stability. Therefore, understanding these processes is significant not only for researchers, but also for politicians, civil society, and international

1 O. SEMENENKO, V. ONOFRIICHUK, P. TOLOK, V. RIEZNIK, D. MOMOT, *Analysis of Ukraine's external military-economic relations during the war with Russia,* in *Scientific Bulletin of Mukachevo State University. Series "Economics"*, 2024, 11(1), pp. 71-82.

2 T. PANFILOVA, *Lessons of consolidation processes of Ukrainian community of Western Ukraine in the first quarter of the XX century,* in *Democratic Governance*, 2022, 15(1), pp. 42-56.

3 L. MIKHNEVYCH, N. ILNYTSKA, K. ILIKCHIIEVA, Y. RYZHUK, *Legal Guarantees and Judicial Protection of Human Rights in the Post-Soviet States and the Countries of the North Atlantic Alliance in the 21st Century,* in *Pakistan Journal of Criminology*, 2023, 15(2), pp. 131–146.

organisations seeking to ensure peace and prosperity in the world.

One of the key issues is the specific features of the political system in Ukraine after 24 February 2022. Kobets[4] explored this issue. Specifically, the processes of political governance were defined in a series of laws of Ukraine. Therewith, the political process in Ukraine is characterised by destructive elements, including corruption, lack of transparency, lack of competent civil servants, imperfect mechanisms of political and administrative control, etc. Another significant aspect in the context of the development of a democratic system is the organisation of political consciousness in the context of the Russian-Ukrainian war. Considering the above, Venger and Postol[5] addressed the formation of political consciousness in the context of the Russian-Ukrainian war. Specifically, it is political consciousness that affects the democratisation of society and is an essential and necessary condition for it. In addition, the development of political consciousness in society helps citizens to become more aware, take a greater part in the processes within the state, make decisions, and influence a series of processes. Furthermore, the regime transformations in Ukraine since independence require a thorough investigation. Such a study was conducted by Pashkov and Khomeriki[6] for the period from the declaration of Ukraine's independence to 2019. Specifically, the researchers emphasised that the trajectory of Ukraine's political development is moving in a circle, accompanied by alternating periods of democratisation and authoritarian regressions. Therewith, the political regime in Ukraine in the 1990s was an unconsolidated authoritarianism, which, however, was not fully completed for a series of reasons.

Furthermore, political development in terms of the change of political elites is a problem. Bushev[7] studied this issue, noting that the political transformation in Russia took place in two stages: the period of formation of quasi-demo-

4 Y. KOBETS, *The political system of Ukraine under martial law: Problems of efficiency*, in *Bulletin of the Precarpathian University. Series: Political Science*, 2024, 16(1), pp. 27–33.

5 O. VENGER, O. POSTOL, *The formation of political consciousness in the conditions of a full-scale Russian–Ukrainian war*, in *Humanities Studies*, 2023, 93(16), pp. 95–102.

6 V. PASHKOV, O. KHOMERIKI, *Political transformations in Ukraine (1991–2019): Running in a circle on the way to democracy*, in *Bulletin of Yaroslav Mudryi National Law University Series Philosophy Philosophies of Law Political Science Sociology*, 2023, 1(56).

7 M. BUSHEV, *From decentralization to centralization: The history of the usurpation of political power in Russia (1991–2008)*, in *Bulletin of Lviv University. Series Philosophy-Political Studies*, 2023, 48, pp. 214–219.

cracy during the presidency of Boris Yeltsin and the total centralisation of power during the first two presidential terms of Vladimir Putin. The centralisation itself was accompanied by an increase in the influence of law enforcement agencies, changes in political institutions, subordination of the media, etc. The above also includes the problem of distinguishing the specific features of the political regime. Parkhomenko[8] addressed this subject, noting that the political-legal regime in Russia has a series of features that allow characterising it as such that was transformed from the USSR regime and in modern conditions has both totalitarian and democratic features with a bias towards strengthening the classical totalitarian features. The factors that point to this include the consolidation of power in the hands of a single person, the absence of civil society, the right to opposition, or an independent court, etc. Denishchenko[9] added such features as the cult of personality, militarism, and totalitarianism designed to unite lands through hybrid operations, which together constitute "Ruscism".

A rollback of democratic values is often accompanied by a ban on political parties. Kozminykh[10] studied this issue. Specifically, the researcher investigated the process of banning political parties before and after Russia's full-scale invasion of Ukraine. While before Russia's full-scale invasion of Ukraine this could only be achieved through the courts, during martial law the ban on certain political parties is an easier procedure, as it is conducted by administrative rather than judicial decision. The democratic or authoritarian tendencies in internal politics are also influenced by the individuals in power.[11] Trebin[12] analysed this issue in his study of Russia's internal and foreign affairs, noting that many of the "ruling elite" climbed to the top through racketeering, raiding, contract killings, etc. That is why, instead of a multi-party system, the "guiding and directing force" of Russian society and the core of the political system is the United Russia party.

8 N. PARKHOMENKO, *The state regime of the Russian Federation: Some political and legal dimensions*, in *Philosophical and Methodological Problems of Law*, 2022, 23(1), pp. 50–56.

9 D. V. DENISHCHENKO, *Armed violence in the post-Soviet political space as an attribute of Russian ideology*, in *Politikus*, 2023, 5, pp. 31–40.

10 A. V. KOZMINYKH, *International and national "standards" for banning political parties under martial law*, in *Politikus*, 2024, 1, pp. 43–48.

11 E. SHAHINI, E. SHAHINI, *The Economic and Political Legacy of Trump's First Term: Implications for the Second Presidency,* in *Politics and Policy*, 2025, 53(5), article no. e70066.

12 M. TREBIN, *Usual ruscism: General characteristics*, in *Bulletin of Yaroslav Mudryi National Law University Series Philosophy Philosophies of Law Political Science Sociology*, 2022, 4(55), pp. 143–157.

According to the analysis of modern research, the role of volunteer organisations after 24 February 2022 requires additional attention. The effectiveness of reforms during the war and the role of the media in shaping attitudes towards the current government were also relevant for this study. Considering the above, the purpose of the study was to identify the key factors that influenced the development of state-building institutions in Ukraine and Russia. The objectives of the study were to review the party system, the dynamics of civil society organisations, and to determine the role of democracy in societies according to opinion polls.

2. Materials and methods

The study was based on statistical information from the non-governmental organisation Freedom House.[13] Survey data from respondents in Ukraine and Russia were the subject of the World Values Survey[14] on the website of the organisation of the same name. Furthermore, the World Values Survey[15,16,17] was used to understand the cross-cultural differences and similarities between the societies of Ukraine and Russia. A publication by Radio Liberty explored aspects of the Ukrainian lands becoming part of the USSR in the context of preserving the church in Ukraine.[18] The study also used survey data from the analytical company TNS MMI[19] on the number of supporters of the Ukrainian Orthodox Church (UOC), the Moscow Patriarchate (MP), and the Kyiv Patriarchate (KP).

13 Freedom House, *Country and territory ratings and statuses, 1973–2024*, 2025. https://freedomhouse.org/report/freedom-world

14 World Values Survey, *Online Data Analysis,* 2025. https://www.worldvaluessurvey.org/WVSOnline.jsp

15 World Values Survey, *WVS Cultural Map: 2023 Version Released,* 2023. https://www.worldvaluessurvey.org/WVSNewsShow.jsp?ID=467

16 C. WELZEL, R. INGLEHART, F. DEUTSCH, *Social capital, voluntary associations and collective action: Which aspects of social capital have the greatest 'civic' payoff?*, in *Journal of Civil Society*, 2006, 1(2), pp. 121–146.

17 R. F. INGLEHART, *Cultural evolution: People's motivations are changing, and reshaping the world*, Cambridge University Press, 2018.

18 H. BILORUSETS, *Soviet crimes in western Ukraine in 1939–1941: Imprisonment, torture, executions and deportation*. 2022. https://www.radiosvoboda.org/a/srsr-represiyi-tortury-deportatsiya/32036952.html

19 New survey: 60% of UOC-KP and 24% of UOC-MP supporters in Ukraine, 2016. https://www.religion.in.ua/news/vazhlivo/33672-nove-doslidzhennya-v-ukrayini-60-prixilnikiv-upc-kp-ta-24-upc-mp.html

In the context of the development of the authoritarian regime in Russia, the content analysis method was employed to examine Radio Liberty's publications on the White House shooting[20] and the 2003 elections[21] to state bodies. Court cases, including the Yukos case[22] and the lawsuit[23] filed by the Republican Party of Russia with the European Court of Human Rights (ECHR), were also thoroughly analysed. Furthermore, the elements of military censorship in Russia after the full-scale invasion of Ukraine in 2022 were investigated.[24] For a better understanding of the socio-political processes in Russia in 2000 and 2010 the study reviewed the publication of the National Institute for Strategic Studies, edited by Rozumnyi.[25]

The study analysed the formation of the tradition of open and fair elections in Ukraine, which was the subject of research by the OPORA organisation, specifically, publications on the 1994 elections,[26] the 2004 elections,[27] and the 2010 elections.[28] Furthermore, another publication examined the results of the 2012 parliamentary elections.[29] Authoritarian aspects during the presidency of

20 O. MATUSOVA, *20 years ago, the White House in Moscow was shot at*. 2013. https://www.radiosvoboda.org/a/25124983.html

21 L. VANNEK, *Elections to the State Duma of Russia – Results and behind-the-scenes Kremlin games*. 2003. https://www.radiosvoboda.org/a/910561.html

22 O. KUNYTSKYI, *The Yukos case: Russia secures review of the case in the Netherlands*. 2021. https://www.dw.com/uk/verkhovnyi-sud-niderlandiv-vidpravyv-na-perehliad-rishennia-u-spravi-iukosu/a-59736744

23 European Court of Human Rights, *Dissolution of Russian opposition party was unjustified,* 2011. https://hudoc.echr.coe.int/app/conversion/pdf/?library=ECHR&id=003-3504831-3951446

24 Military censorship in the Russian Federation, 2022. https://kanaldim.tv/voyenna-czenzura-v-rf-chastyna-rosiyan-ne-rozumiyut-prychyn-zhurnalisty-zagovoryly-pro-samvydav-mozhlyvi-naslidky-video/

25 M. ROZUMNYI, *Putin's Regime: Reboot-2018*. 2018. https://niss.gov.ua/sites/default/files/2019-02/Rezhym_Putina_do_druku_new-c9ed2.pdf

26 Y. ZOLOTAREVA, *Election history: Early presidential elections in Ukraine in 1994*. 2021b. https://www.oporaua.org/vybory/istoriia-viboriv-dostrokovi-vibori-prezidenta-ukrayini-u-1994-rotsi-22993

27 Y. ZOLOTAREVA, *Election history: Ukraine elected its third president in 2004 in three rounds*. 2021c. https://www.oporaua.org/vybory/istoriia-viboriv-tretogo-prezidenta-v-2004-rotsi-ukrayina-obirala-u-tri-turi-23049

28 Y. ZOLOTAREVA, *The history of elections: In 2010, a woman entered the second round of the presidential election in Ukraine for the first time*. 2021a. https://www.oporaua.org/vybory/istoriia-viboriv-u-2010-rotsi-u-drugii-tur-viboriv-prezidenta-ukrayini-vpershe-viishla-zhinka-23066

29 Final report on the results of observation at the early parliamentary elections in Ukraine on July 21, 2019, 2020. https://www.oporaua.org/vybory/zvit_parlamet_election_2019-20227

Leonid Kuchma were also studied,[30] prime ministerial rotations,[31] the scandal of Gongadze's murder,[32] and other problems in the Ukrainian parliament.[33] The official web portal of the Verkhovna Rada of Ukraine[34] studied the composition of the parliament of different convocations.

In the context of the transformation of the regulatory sphere in Russia in 2010 and 2020, information from the International Federation for Human Rights[35,36] was used. The development of civil society organisations (CSOs) in Ukraine and Russia was the subject of the report by Civil Society Organisation.[37,38,39] In the context of CSO development in Ukraine, the Charities Aid Foundations (CAF)[40] were also studied.

3. Results

After the collapse of the USSR, the 15 newly formed governments began to build independent states, whose model was an alternative to the Soviet political system. Most of them turned to liberal democracy, the fundamental values of

30 N. LEBED, *Red Director or the Newest Mazepa? On the 30th anniversary of Leonid Kuchma's election*. 2024. https://glavcom.ua/longreads/chervonij-direktor-chi-novitnij-mazepa-do-30-richchja-obrannja-leonida-kuchmi--1009555.html

31 D. YANEVSKY, *Live broadcast on October 19, 2003*. 2003. https://www.radiosvoboda.org/a/909009.html

32 D. PRYSTAI, *21 years since the abduction of Georgiy Gongadze: A chronicle*. 2021. https://suspilne.media/63149-20-rokiv-z-vikradenna-georgia-gongadze-hronika/

33 M. PIROZHUK, *The Verkhovna Rada is back with the Chairman, but the coalition is still in question*. 2008. https://www.radiosvoboda.org/a/1358351.html

34 People's Deputies of Ukraine, 2024. https://w1.c1.rada.gov.ua/pls/site2/p_deputat_list

35 International Federation for Human Rights, *Table illustrating legislative crackdown on rights and freedoms of the civil society in Russia since 2012*, 2017. https://www.fidh.org/IMG/pdf/tableau_russie_web_paysage_v2-2.pdf

36 International Federation for Human Rights, *The last 50: Russian repressive laws since 2018*, 2023. https://en.zona.media/article/2023/06/08/50rep_en-trl

37 Civil Society Organisation, *The 2014 CSO Sustainability Index for Central and Eastern Europe and Eurasia,* 2015. https://s3.fr-par.scw.cloud/djnd/cnvos/filer_public/34/9d/349d0c66-2d1b-409f-b8f7-ac5f0eecc2f7/csosi_report_2014.pdf

38 Civil Society Organisation, *2018 Civil Society Organization Sustainability Index. Central and Eastern Europe and Eurasia,* 2019. https://api.home.ednannia.ua/upload/kch/24/01/10/EE-2018-CSOSI-FINAL%20(1).pdf

39 Civil Society Organisation, *2022 Civil Society Organization Sustainability Index Central and Eastern Europe and Eurasia,* 2023. https://www.fhi360.org/wp-content/uploads/drupal/documents/csosi-europe-eurasia-2022-report.pdf

40 Charities Aid Foundation, *CAF World Giving Index: A global pandemic special report,* 2021. https://www.cafonline.org/docs/default-source/about-us-research/cafworldgivingindex2021_report_web2_100621.pdf

which were first incorporated into the political and economic space of the USSR during the perestroika period. However, the path of democratic transition had various trajectories for different Soviet republics that emerged from the same 'cradle'. The proximity of the starting points of these countries in many aspects suggested that the nature of their transition would be substantially alike. The first measurements of the level of democracy conducted by Freedom House[41] demonstrated synchronous assessments, but only in the first decade (Figure 1).

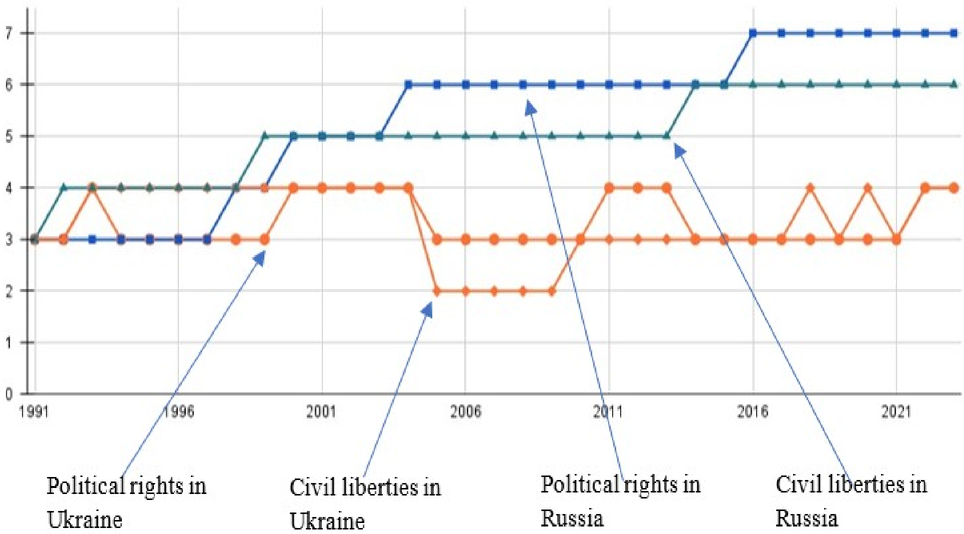


Figure 1. Political rights and civil liberties in Ukraine and Russia in 1991–2024

Source: created by the authors of this study based on Freedom House[42]

Despite synchronous periods of decline, for instance, from 2000 to 2004, when indicators in both countries deteriorated, Ukraine did not exceed the critical value of 4 points in both parameters, remaining a partially free democracy, while from 1991 to the present-day Ukraine has never been in the zone of unfree countries. However, in the 5 years from 2005 to 2009, the state of political rights and civil liberties was assessed at 3 and 2 points respectively, which allows defining the country's political regime as free. In Russia, however, the score dropped to 5 points in both dimensions, and since 2004, the state of political rights has

41 Freedom House, *Country and territory ratings and statuses, 1973–2024,* 2025. https://freedomhouse.org/report/freedom-world

42 *Ibid.*

been assessed at 6 points, putting the country in the unfree status it is in today. Thus, the closeness of the starting positions of both countries and a certain synchronicity of the pace and direction of development in the first years of their independence did not create a single track, setting multiple trajectories for their development based on a common authoritarian past. Accordingly, the experience of democratic transformation is essential source of comparison in the study of factors of obstacles to democratisation.

The path to democratisation in Ukraine and Russia began with a common political culture, the basis of which has been rapidly developing since the late 1980s. The formation of democratic prospects for the development of the communist political system of the USSR was a political alternative that liberalised the existing regime and thus substantially disrupted the foundations of the old one.[43] However, the achievement of statistically visible results of changes that would transform institutions was a long process of incorporation of new social norms and value orientations in both societies.

According to the evolutionary theory of modernisation,[44] democracy is more likely to develop in societies with strong levels of self-expression. Accordingly, institutional changes that modernise the political system are interpreted as a reaction to the pressure of new values embedded in society. However, transformational societies, including most of the post-communist countries, had extremely unstable dynamics of economic development and political reformatting, creating unfavourable conditions for the consolidation of a new political culture oriented towards democratic values.[45,46] The decline of communist ideology created a value vacuum filled, according to Inglehart, with

---

43 M. BLIKHAR, M. VINICHUK, M. KASHCHUK, V. GAPCHICH, S. BABII, *Economic and legal aspects of ensuring the effectiveness of counteracting corruption in the system of anti-corruption measures of state authorities,* in *Financial and Credit Activity: Problems of Theory and Practice*, 2023, 4(51), pp. 398–407.

44 R. F. INGLEHART, *Cultural evolution: People's motivations are changing, and reshaping the world*, Cambridge University Press, 2018.

45 K. KETNERS, Z. JARGALSAIKHAN, A. MILLER, O. MILIIENKO, L. MALKHASYAN, *Evaluation of effective anti-corruption strategies in state institutions,* in *Ceridap*, 2025, 2025(1), pp. 93–118.

46 O. KOTUKOV, D. KARAMYSHEV, T. KOTUKOVA, A. CHERNOIVANENKO, A. SERENOK, *Can digital transparency tools systematically reduce corruption in government? Evidence from Estonia, Ukraine and Brazil,* in *Journal of Theoretical and Applied Information Technology*, 2025, 103(10), pp. 4256–4257.

traditional values of religious and/or nationalist beliefs. Consequently, even during periods of economic growth in these countries, there was a rather slow increase in the share of people who preferred the values of self-expression. Comparative data from four waves of surveys in Ukraine and Russia collected for the World Values Survey (WVS)[47] confirmed this statement, as the share of postmaterialists has stayed extremely low for more than two decades of research, while the share of materialists has been extremely high (Table 1).

Table 1. Comparison of the post-materialism index of Ukraine and Russia according to the survey waves

	Wave No. 4		Wave No. 5		Wave No. 6		Wave No. 7	
	Ukraine 1996	**Russia 1995**	**Ukraine 2006**	**Russia 2006**	**Ukraine 2011**	**Russia 2011**	**Ukraine 2020**	**Russia 2017**
Materialists	50.1	54.5	47.2	53.9	46.2	52.7	43.4	52.2
Mixed	40.1	42.2	47	41.7	50.1	44.9	45.4	41.3
Post-materialists	2.3	1.6	3.4	1.8	3.7	2.7	4.8	3.4

Source: created by the authors of this study based on World Values Survey[48]

The proximity of Ukraine and Russia, recorded on the World Values Survey[49] for all years of observation from 1980 to 2024, illustrates these slow dynamics, which had a lower rate of change compared to the Baltic states and other post-communist countries classified as the cultural zone of Catholic Europe. However, both countries had high scores on the scales of secular rational and survival values. Thus, the placement of Ukraine and Russia on these cultural maps, on the one hand, demonstrates the equally slow dynamics of overcoming the Soviet value heritage, and on the other hand, indicates a weak tendency to increase the weight of self-expression values. The role of emancipatory values in assessing the level of democracy in each country deserves special attention, as people with grea-

47 World Values Survey, *Online Data Analysis,* 2025. https://www.worldvaluessurvey.org/WVSOnline.jsp

48 *Ibid.*

49 World Values Survey, *WVS Cultural Map: 2023 Version Released,* 2023. https://www.worldvaluessurvey.org/WVSNewsShow.jsp?ID=467

ter emancipatory values, according to the authors of the study, are more likely to underestimate the democratic performance of their country than to overestimate it, and thus they can encourage an active public to engage in non-violent protest to prevent a shift away from democracy.[50]

In the case of Ukraine and Russia, all the above factors are significant, as the complex colonial history of relations between the peoples and the various religious and national landscapes of these countries have shaped major cultural differences that have played a role in both the medium and long term. However, decades of living under the same totalitarian political system could not but lead to similarities in the value orientations of citizens of both countries, which was recorded on cultural maps, and their proximity to each other on these maps helped the researchers to classify both countries as orthodox societies of the zone of communist influence.[51] Meanwhile, a closer look at the religious situation in both countries reveals significant differences, marked by the civilisational fault line that separates Western Christianity from Orthodox Christianity and Islam and runs through Ukraine.[52] This has undoubtedly led to the heterogeneity of not only the religious but also the general cultural space of Ukraine, although it was not clearly recorded by the sociological indicators of the values survey.

Additionally, the western Ukrainian lands became part of the USSR only in 1939, after the division of Poland between two dictators. In such a political paradigm, it was the Ukrainian Greek Catholic Church (UGCC) that, in the absence of national statehood on the territory of Ukraine, became a socio-political authority, a centre of national self-preservation and retained its influence in the 21st century.[53] After the collapse of the USSR, two large "branches" were formed within Orthodoxy: The UOC-MP, which did not break its canonical ties with the Russian Orthodox Church (ROC), and the UOC-KP, autonomous from the

50 C. WELZEL, R. INGLEHART, F. DEUTSCH, *Social capital, voluntary associations and collective action: Which aspects of social capital have the greatest 'civic' payoff?*, in *Journal of Civil Society*, 2006, 1(2), pp. 121–146.

51 *Ibid.*

52 S. P. HUNTINGTON, *The clash of civilizations?*, in *Foreign Affairs*, 1993, 72(3), pp. 22–49.

53 H. BILORUSETS, *Soviet crimes in western Ukraine in 1939–1941: Imprisonment, torture, executions and deportation*. 2022. https://www.radiosvoboda.org/a/srsr-represiyi-tortury-deportatsiya/32036952.html

jurisdiction of the ROC, which expressed the belief of a considerable number of churchgoers (in 2004, 50.44% of respondents identified themselves as the UOC-KP and 26.13% as the UOC-Moscow Patriarchate) in the desire for church autocephaly and independence from Russian influence in all spheres of social and political life.[54] This factor also played a significant role in shaping values, as supporters of the UOC-KP were mostly proactive citizens, more loyal in their perception of social change. Supporters of the UOC constituted a more conservative part of the churchgoers, focused on preserving established religious traditions and loyal to a wider range of ideological messages of 'superior-power' Russian Orthodoxy. Thus, Ukraine was not only historically and geographically more integrated into the Western world than Russia, but also religiously represented the crossroads of two cultural zones: Orthodox and Catholic. It was not, in fact, confessionally homogeneous within Orthodoxy itself, which was a consequence not only of the internal church struggle for a place in the hierarchy, but also a reflection of the attitude of Ukrainian society towards the autonomy of the Ukrainian Orthodox Church.

In this context, the question "How important is it for you to live in a country that is governed democratically?" is indicative. Differences in the results revealed the presence of positive dynamics (according to different waves of the WVS) in the assessments of Ukrainian respondents and negative dynamics in the answers of Russian respondents. In the 6th wave (2010-2014), to the question "How important is it for you to live in a country where the laws of democracy prevail?", 26% of Russians and 36% of Ukrainians expressed absolute confidence in the value of democracy. Another 38% of Russians and the same number of Ukrainians consider democracy to be rather important, with scores ranging from 7 to 9 out of 10. In other words, a total of 64% of Russians and 74% of Ukrainians rated the democratic form of government highly. The data from the 7th wave of the survey revealed major differences among those for whom living in a democratic country was crucial. Accordingly, 43% of Ukrainians and only 23% of Russians expressed absolute confidence in the value of democracy for them. Ove-

54 New survey: 60% of UOC-KP and 24% of UOC-MP supporters in Ukraine, 2016. https://www.religion.in.ua/news/vazhlivo/33672-nove-doslidzhennya-v-ukrayini-60-prixilnikiv-upc-kp-ta-24-upc-mp.html

rall, 61% of Russians and 74% of Ukrainians declared the significance of the democratic system among their political priorities.[55] Thus, the gap between expectations and perceptions of the reality in Ukraine is much wider, with many consequences, including deepening frustration and a growing sense of relative disadvantage, which has become the basis for the maturation of protest moods. This led to two large-scale waves of citizen mobilisation in 2004 and 2013-2014, which played a key role in the development of democratisation processes in the country's political system. In this context, the most recent polling results are also significant. For instance, in 2024, the Kyiv International Institute of Sociology (KIIS) published the findings of a survey,[56] where 59% of Ukrainians said that the development of a democratic system is significant for Ukraine. Meanwhile, a poll conducted by the National Opinion Research Centre of the University of Chicago showed[57] that in 2024, 67% of Russians approved of the state's foreign policy, 58% of internal policy, and 66% would vote for Putin in the next election.

The late 1980s and early 1990s were years of intense democratic development in both Ukraine and Russia. However, the first serious political tests revealed major differences in the consolidation of democratic institutions and democratic orientations overall. Accordingly, in autumn 1993 in Russia, against the backdrop of acute ethnic conflicts and a deep economic crisis, in the confrontation between the Russian parliament and President Boris Yeltsin, the latter won the military attack on the opposition parliament.[58] Subsequently, amendments to the Constitution were adopted that substantially strengthened presidential power by establishing a so-called "super-presidential republic" with a monocentric model of power, thus levelling the principles of separation of state power in the Russian Federation.[59]

55 World Values Survey, *Online Data Analysis,* 2025. https://www.worldvaluessurvey.org/WVSOnline.jsp

56 A. GRUSHETSKY, *To what extent do Ukrainians consider Ukraine a democratic country and the priority of the democratic system*. 2024. https://kiis.com.ua/?lang=ukr&cat=reports&id=1406&page=1

57 M. GYCHKO, *63% of Russians support the war in Ukraine – University of Chicago poll*. 2024. https://www.unian.ua/russianworld/63-rosiyan-pidtrimuyut-viynu-v-ukrajini-opituvannya-chikazkogo-universitetu-12506979.html

58 O. MATUSOVA, *20 years ago, the White House in Moscow was shot at*. 2013. https://www.radiosvoboda.org/a/25124983.html

59 M. ROZUMNYI, *Putin's Regime: Reboot-2018*. 2018. https://niss.gov.ua/sites/default/files/2019-02/Rezhym_Putina_do_druku_new-c9ed2.pdf

Since 2000, V. Putin's presidency, in the wake of failed modernisation, has been rapidly turning the country towards dedemocratisation and consolidating in the choice of "authoritarian revenge": the omnipotence of law enforcement agencies is restored, the media is taken under control, regional self-government centres are eliminated, total control of the presidential vertical over the federal district government is established, the representative mandate of deputies of the upper house of parliament (the Federation Council) is eliminated by replacing representation with the appointment of officials by the central government. The political ambitions of the oligarchs are levelled through favourable living conditions for those who showed loyalty and through demonstrative repression of those who showed resistance, such as the Yukos case.[60] Ultimately, these and other related factors lead to the destruction of the possibility of real political competition, and the role of socio-political activity is reduced to fictitious functions, namely, ensuring the legitimation of the regime's pseudo-democratic policies.[61] Under these conditions, the power of United Russia, the ruling party, gained more than two-thirds of the seats in the 2003 State Duma elections.[62] The results were secured with the use of administrative resources, but this did not provoke widespread public resistance. However, the fastest and most fundamental political decisions that finally cemented the authoritarian turn began in 2014, with the annexation of Crimea and the start of the hybrid war against Ukraine.

As for Ukraine, in 1994, an event occurred that was common for established democracies, but unusual and significant for the "young" Ukrainian democracy: the presidential election of incumbent President Leonid Kravchuk was defeated by a representative of large industrial circles, Leonid Kuchma.[63] In 1996, through heated debates, the Constitution was adopted,[64] which consolidated the

60 O. KUNYTSKYI, *The Yukos case: Russia secures review of the case in the Netherlands*. 2021. https://www.dw.com/uk/verkhovnyi-sud-niderlandiv-vidpravyv-na-perehliad-rishennia-u-spravi-iukosu/a-59736744

61 M. ROZUMNYI, *Putin's Regime: Reboot-2018*. 2018. https://niss.gov.ua/sites/default/files/2019-02/Rezhym_Putina_do_druku_new-c9ed2.pdf

62 L. VANNEK, *Elections to the State Duma of Russia – Results and behind-the-scenes Kremlin games*. 2003. https://www.radiosvoboda.org/a/910561.html

63 Y. ZOLOTAREVA, *Election history: Early presidential elections in Ukraine in 1994*. 2021b. https://www.oporaua.org/vybory/istoriia-viboriv-dostrokovi-vibori-prezidenta-ukrayini-u-1994-rotsi-22993

64 Law of Ukraine No. 254/96-VR "On the Adoption of the Constitution of Ukraine and its Enactment", 1996. https://zakon.rada.gov.ua/laws/show/254/96-%D0%B2%D1%80#Text

presidential-parliamentary system of government. Overall, Kuchma's presidency was characterised[65] by attempts to balance between two influential financial and industrial groups (the so-called Dnipro and Donetsk "clans"), which "competed" for state "trophies" and, above all, for the post of prime minister. The strategy of cooperation with the oligarchs and a major political crisis over the alleged ordering of the murder of journalist Georgiy Gongadze and mass protests in 2001 demanding an investigation into the murder and resignation of Leonid Kuchma,[66] analogous to the scenario in Russia, forced Kuchma to negotiate with financial groups to prepare a successor who would guarantee Kuchma's immunity.[67] However, an almost identical plan to the Russian one, which envisaged the victory of an agreed prime minister in the new presidential election, failed. Fraud in favour of the pro-government candidate Viktor Yanukovych brought hundreds of thousands of protesters to the streets, who, after a prolonged standoff, secured a run-off vote and, thanks to public scrutiny, ensured a fair vote count in the second round, where pro-democratic candidate Viktor Yushchenko won.[68] This event, known as the Orange Revolution, demonstrated the government's inability to resolve the conflict by force, while at the same time showing the public the power of collective action. Although the road to democracy was difficult and winding, the traditions of political competition, pluralism, and civic engagement were taking deeper root in Ukrainian society.[69] The attempted authoritarian revenge of Viktor Yanukovych, who managed to return to politics as a result of new (fair) presidential elections, was again foiled by large-scale public resistance after a three-month protest campaign – the Revolution of Dignity.

---

65 D. YANEVSKY, *Live broadcast on October 19, 2003*. 2003. https://www.radiosvoboda.org/a/909009.html

66 D. PRYSTAI, *21 years since the abduction of Georgiy Gongadze: A chronicle*. 2021. https://suspilne.media/63149-20-rokiv-z-vikradenna-georgia-gongadze-hronika/

67 N. LEBED, *Red Director or the Newest Mazepa? On the 30th anniversary of Leonid Kuchma's election*. 2024. https://glavcom.ua/longreads/chervonij-direktor-chi-novitnij-mazepa-do-30-richchja-obrannja-leonida-kuchmi--1009555.html

68 Y. ZOLOTAREVA, *Election history: Ukraine elected its third president in 2004 in three rounds*. 2021c. https://www.oporaua.org/vybory/istoriia-viboriv-tretogo-prezidenta-v-2004-rotsi-ukrayina-obirala-u-tri-turi-23049

69 O. SEMENENKO, S. HODZ, R. DUZHYI, I. STUPNYTSKYI, V. KOVERGA, *Mechanisms for ensuring energy security in the system of international relations considering economic sanctions and political conflicts,* in *Economics of Development,* 2024, 23(4), pp. 72-81.

As demonstrated above, since the second half of 1990, the political trajectories of Ukraine and Russia have increasingly diverged. Clearly, the key reason for this is the development of a different balance of power between the parties as a result of the consolidation of "closed" or "open access" institutions.[70] In Russia, the development of a hierarchical elite with exclusive rights to dominant resources occurred due to the weakening of competitiveness in socio-economic and political processes, which influenced the institutionalisation and acculturation of authoritarian political culture. The fragmentation of Ukrainian elites in the absence of an oligarchic consensus did not allow the authorities to monopolise access to political resources, creating structural opportunities for the gradual strengthening of open society institutions, such as political competition, change of government, public control, legislative implementation, democratic norms and values.

The weakness of the authoritarian regime in Ukraine was undoubtedly conditioned by the weakness of the state's economy, administrative chaos, and oligarchic transition to a market economy, but the situation in the socio-political sector showed considerable potential for a democratic political system of Ukraine.[71,72] Pluralism by default' did take place, but not only and not so much because of state helplessness as because of the historical and political background of Ukrainian statehood. At the beginning of Ukraine's independence, a national-democratic socio-political movement was already actively developing, led by dissidents and former political prisoners of the Soviet communist regime, who managed to gain the support of the general public and convert it to secure a sufficiently strong position in the first parliament and build up the forces of democratic representation with each subsequent election cycle. Considering that Ukraine did not undergo a radical change of elites in the 1990s (removal of the communist nomenklatura), ideological confrontation in parliament has always been acute, while the balance of power since the 2nd convocation of the

70 D. C. NORTH, J. J. WALLIS, B. R. WEINGAST, *Violence and social orders: A conceptual framework for interpreting recorded human history*. Cambridge University Press, 2009.

71 V. VOLIK, Y. LOZHMETS, O. DAVYDOVA, S. SPRYNCHUK, D. SHVETS, *Electronic governance in Ukraine and Estonia current situation and prospectives,* in *Journal of Legal, Ethical and Regulatory Issues*, 2019, 22(Special Issue 2).

72 P. PETROVSKYY, *A democratic trend in the development of the public administrative sphere in Ukraine in the post-war period,* in *Democratic Governance*, 2023, 16(1), pp. 1-11.

Verkhovna Rada has never been dominated by anti-Western and anti-democratic forces, so that pro-democratic forces could be pushed out of the political and media space.[73] In 2006, the parliamentary elections after the Orange Revolution marked the first time a democratically oriented parliamentary coalition was formed. However, the new balance of political forces proved to be so fragile that over the next 4 years there were a series of coalition rotations in different configurations of political associations,[74] and after the return of Viktor Yanukovych in the 2010 presidential election and his Party of Regions in the local council elections in the autumn of the same year, a period of authoritarian backsliding began.[75]

But even under such conditions, new parties were actively created in Ukraine, as evidenced by the fact that representatives of 124 parties in majority districts and representatives of 98 parties on party lists were elected to councils of various levels.[76] The revanchist government's awareness of the danger of a strong parliamentary opposition and institutional pressure from opposition political parties pushed the government to take controversial decisions, including the criminal prosecution of opposition leaders Yulia Tymoshenko and Yuriy Lutsenko and their sentences (late 2011 – early 2012) to 7 and 4 years in prison, respectively. Such decisions were regarded by international organisations as political repression and led to the polarisation of public sentiment within the country and the activation of both opposition political parties and the socio-political sector overall. Despite such pressure and the use of administrative resources, in the 2012 parliamentary elections, 81 political parties nominated candidates in single-mandate constituencies and 21 – on party lists.[77] According to the results of these

73 People's Deputies of Ukraine, 2024. https://w1.c1.rada.gov.ua/pls/site2/p_deputat_list

74 M. PIROZHUK, *The Verkhovna Rada is back with the Chairman, but the coalition is still in question*. 2008. https://www.radiosvoboda.org/a/1358351.html

75 Y. ZOLOTAREVA, *The history of elections: In 2010, a woman entered the second round of the presidential election in Ukraine for the first time*. 2021a. https://www.oporaua.org/vybory/istoriia-viboriv-u-2010-rotsi-u-drugii-tur-viboriv-prezidenta-ukrayini-vpershe-viishla-zhinka-23066

76 Ukrainian Center for Independent Political Research, *Dynamics of party representation in Ukraine after the revolution of dignity,* 2016. http://www.ucipr.org.ua/en/publications/publication/dynamics-of-party-representation-in-ukraine-after-the-revolution-of-dignity/

77 Final report on the results of observation at the early parliamentary elections in Ukraine on July 21, 2019, 2020. https://www.oporaua.org/vybory/zvit_parlamet_election_2019-20227

elections, the representation of opposition parties in the parliament reached 41.4% of the total, and the ruling Party of Regions won 47.3% of the seats.[78] However, a more realistic picture of electoral preferences can be observed considering that the elections to the Verkhovna Rada were held under a mixed system, where only half of the parliament was elected on party lists, while the other half was formed in single-member constituencies under the majority system.

In the context of a considerable increase in formal and informal influence of the central government on mandates, majoritarian representation mostly demonstrated the consolidation of elites around the central government, while the proportional representation system reflected the mass sentiments.[79] Thus, according to this analytical perspective, the role of ideological pluralism and real political competition in the functioning of the so-called "default pluralism" becomes clear. In the absence of a public consensus around the government and polarisation of ideological (party) priorities, authoritarian authorities can only rely on financially and administratively consolidated elites, which, incidentally, are also ideologically and regionally fragmented.[80] Therefore, authoritarianism in Ukraine arguably has failed not so much because of a lack of resources as because of the extremely prohibitive costs of suppressing resistance. Extensive institutional and structural resources were consolidated in the hands of the authorities: a pro-presidential parliament and a controlled power vertical, expanded constitutional powers of the president, economic stabilisation of the country, full control over law enforcement agencies, and even the judiciary. However, this consolidation looked like a colosse aux pieds d'argile, as the entire structure was not backed by consolidated public support. Thus, the broad public support for the opposition, the growing institutional capacity of civil society, and the experience of previous

78 Ukrainian Center for Independent Political Research, *Dynamics of party representation in Ukraine after the revolution of dignity,* 2016. http://www.ucipr.org.ua/en/publications/publication/dynamics-of-party-representation-in-ukraine-after-the-revolution-of-dignity/

79 V. V. HALTSOVA, O. O. VOLODINA, V. I. HORDIEIEV, I. V. SAMOSHCHENKO, K. M. OROBETS, *Analysis of criminal law on ecocide: A case study of war in Ukraine,* in *Revista Kawsaypacha: Sociedad y Medio Ambiente,* 2024, 2024-July-December(14), article no. D-013.

80 O. BAZALUK, D. SVYRYDENKO, S. TEREPYSHCHYI, *Structural-functional models of integration and reintegration of Ukrainian educational landscape,* in *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu,* 2017, 5, pp. 163-168.

political achievements made the cost of keeping the authoritarian government on its own two feet prohibitively high.

In 1990, in the last year of the USSR's existence, the Resolution On Enacting the Law of the USSR No. 1709-1 "On Public Associations"[81] was adopted, which set very favourable rules for the establishment and registration of political parties. To be legally recognised, a political party had to have at least five thousand members, which was not a major obstacle in a country of millions. However, the situation with the establishment of political parties in Russia was different, as evidenced by complaints to the European Court of Human Rights (ECtHR).[82] Representatives of the Republican Party of Russia filed a lawsuit with the ECtHR, which delivered a judgement in the case. The verdict states that the Russian authorities violated Article 11 (guarantee of freedom of association) of the European Convention for the Protection of Human Rights and Fundamental Freedoms and notes that Russian party legislation does not meet European standards. Specifically, the Court ruled that the establishment of an excessive threshold for the number of party members and an excessive 7% threshold were incompatible with democratic norms. The Court gave a clear assessment of this legislative practice as one that undoubtedly had a clear negative impact on the ability of diverse political forces to take part effectively in the political process and thus affected pluralism. Specifically, this effect is evidenced by the fact that only fifteen political parties out of forty-eight managed to meet the increased minimum membership requirement. Thus, the above facts suggest that the authorities deliberately took measures to reduce the level of democratic debate, deprived the opposition of a parliamentary platform to defend an alternative course, and weakened its organisational and institutional capacity to influence decision-making and political processes overall.

---

81 Resolution On Enacting the Law of the USSR No. 1709-1 "On Public Associations", 1990. https://www.economics.kiev.ua/download/ZakonySSSR/data01/tex10701.htm

82 European Court of Human Rights, *Dissolution of Russian opposition party was unjustified,* 2011. https://hudoc.echr.coe.int/app/conversion/pdf/?library=ECHR&id=003-3504831-3951446

International Federation for Human Rights[83] published the results of a thorough monitoring of Russian legislation, which, after Putin's re-election as president in 2012, began to rapidly generate norms aimed at suppressing free thought and civic activity in Russia. A list of 50 laws and regulations was compiled, which included provisions aimed at complicating the activities of non-governmental and human rights organisations, increasing surveillance and censorship, undermining freedom and pluralism in the media space, imposing a single correct interpretation of government actions and even historical events, etc. The government's illiberal campaign was launched rapidly after the annexation of Crimea and the launch of a hybrid war against Ukraine in 2014. Additionally, International Federation for Human Rights,[84] another list of more than 50 laws was compiled, which were enacted between 2018 and 2022. The final course to retain power by imposing a new ideological framework of expansionist imperial narratives on society in preparation for a full-scale war pushed the authorities to adopt increasingly repressive laws that further restricted civil liberties. Grey zones that left at least some possibility of public expression of alternative opinions in the media or even political space were completely eradicated.

Thus, the Russian authorities succeeded in what the Ukrainian authorities failed to do – to tame their opponents by ousting the political, parliamentary, and "disloyal" opposition and establishing control over civil society as an institution and its individual representatives. The two historical examples described above can serve to illustrate two alternative scenarios for the development of post-mobilisation processes that consolidate the principles of a democratic or authoritarian regime. The democratic failure was not caused by the power of the Communist Party, but by the absence of consolidated political forces capable of offering an effective alternative. The long period of political turbulence created a public demand for a "strong hand" to bring order to the chaos of the young democracy, which in the public mind was associated with the destruction of the entrenched egalitarian and paternalistic model of relations, which led to uncertain-

83 International Federation for Human Rights, *Table illustrating legislative crackdown on rights and freedoms of the civil society in Russia since 2012,* 2017. https://www.fidh.org/IMG/pdf/tableau_russie_web_paysage_v2-2.pdf

84 International Federation for Human Rights, *The last 50: Russian repressive laws since 2018,* 2023. https://en.zona.media/article/2023/06/08/50rep_en-trl

ty about the future, frustration, and phobia about the world of market economy and political competition, which was considered as a kind of struggle without rules.

The evolution of Ukrainian parliamentarism demonstrated the development of a political scenario where the political opposition failed to overcome the communist majority in the first stage of democratic development.[85] However, as noted earlier, the communist majority was opposed by a fairly cohesive opposition of democratic forces united by the idea of national revival and restructuring of Ukrainian statehood.

Thus, the Ukrainian opposition had an essential consolidating element that served as a link for many disparate political forces across a wide ideological spectrum, from the moderate left to the conservative right.

Therefore, in the long run, Ukraine managed to consolidate alternative sentiments into political support for anti-communist forces and win the right and opportunity to function in a competitive political space, while Russia, despite the absence of communist party dominance, was unable to leverage this advantage to build stable democratic institutions and implement democratic values.

To illustrate the level of development of civic engagement in a country, one can rely on the Civil Society Organisation Sustainability Index (CSOSI), an instrument for measuring the power of the civil sector. Notably, these studies have been conducted in Ukraine since 2005, and therefore the coverage range is 18 years – up to 2022, as the latest data is available (Figure 2).

85 B. UDERBAYEVA, *Legal aspects of the security of the Caspian region in light of the Russia-Ukraine conflict*, in *Eurasian Legal Systems in a World in Transition: Economic prosperity or disparity, and the return of politics in international law*, Peter Lang AG, 2024, pp. 267–278.

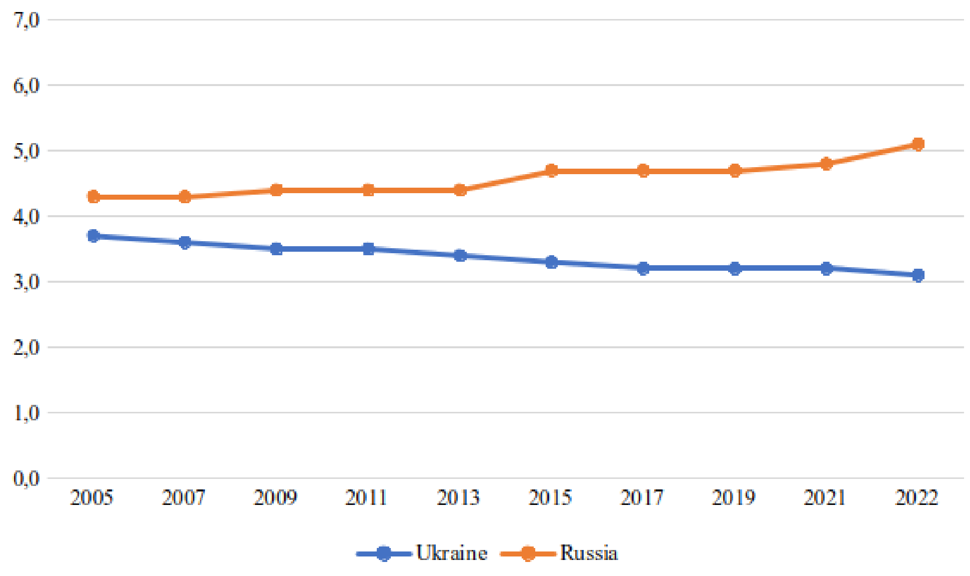


Figure 2. Overall sustainability of civil society organisations (1 – the highest, 7 – the lowest)

Source: created by the authors of this study based on 2022 Civil Society Organization Sustainability Index[86]

The data over the years show comparable trends to Freedom House's[87] assessment of the state of democracy: Ukraine is slowly moving towards strengthening the position of civil society, while Russia is losing it faster. The year 2014, the year of the hybrid invasion of Ukraine and the annexation of Crimea, marked a pivotal moment that signalled a steady decline in the resilience of civil society in Russia. According to CSOSI,[88] anti-Western government rhetoric portraying CSOs as spies and sources of Western influence became more frequent in Russia, especially in relation to human rights organisations. Even then, the government's CSO policy applied double standards to pro-government (or non-political) CSOs and those that claimed to take part in political and legal processes. The re-

86 Civil Society Organisation, *2022 Civil Society Organization Sustainability Index Central and Eastern Europe and Eurasia,* 2023. https://www.fhi360.org/wp-content/uploads/drupal/documents/csosi-europe-eurasia-2022-report.pdf

87 Freedom House, *Country and territory ratings and statuses, 1973–2024,* 2025. https://freedomhouse.org/report/freedom-world

88 Civil Society Organisation, *The 2014 CSO Sustainability Index for Central and Eastern Europe and Eurasia,* 2015. https://s3.fr-par.scw.cloud/djnd/cnvos/filer_public/34/9d/349d0c66-2d1b-409f-b8f7-ac5f0eecc2f7/csosi_report_2014.pdf

port concludes that "the state has created pseudo-independent think tanks and human rights defenders that support the government's positions". Civil Society Organisation Sustainability Index[89] assessment underwent even greater changes, stating that there are two civil societies in Russia, one consisting of numerous organisations (charitable, sports, cultural, educational, etc.) that do not publicly express their disagreement with the state, while other organisations that are critical of the authorities. The state has demonstrated a different attitude towards these two segments of civil society, selectively applying laws to disloyal organisations to suppress dissent. Apart from the above, the worst capacity scores were given to those parameters that are largely dependent on the government. Thus, the lowest scores for 2022 were given to the legal environment (6.8), public image (5.3), financial capacity, and advocacy (5.2 each). As of 2022, the legal environment for the functioning of civil society made it virtually impossible for organisations critical of the government to operate, as after the full-scale invasion of Ukraine, the Russian government adopted a series of laws[90] that introduced 'de facto military censorship' and made it impossible to provide any financial support to even the least critical organisations. In the same year, 2022, a law on control over the activities of persons under foreign influence came into force, which greatly increased state control over individuals or organisations.[91]

As for Ukraine's experience in establishing civil society organisations, an analytical report by the National Centre for Strategic Studies[92] suggests a link between the increase in the number of civil society organisations and the mass protest movements that took place in 2004-2005. On the eve of the Orange Revolution, there was a surge in the creation of new CSOs and, importantly, an expansion of the types of public associations, including charitable organisations,

89 Civil Society Organisation, *2018 Civil Society Organization Sustainability Index. Central and Eastern Europe and Eurasia,* 2019. https://api.home.ednannia.ua/upload/kch/24/01/10/EE-2018-CSOSI-FINAL%20(1).pdf

90 Military censorship in the Russian Federation, 2022. https://kanaldim.tv/voyenna-czenzura-v-rf-chastyna-rosiyan-ne-rozumiyut-prychyn-zhurnalisty-zagovoryly-pro-samvydav-mozhlyvi-naslidky-video/

91 In Russia, a law has come into force that allows people to be declared "foreign agents" on a massive scale, 2022. https://www.radiosvoboda.org/a/news-rosia-inoahenty/32157473.html

92 Yu. A. TYSHCHENKO, O. M. LITVINENKO, O. Yu. MIKHAILOVA, Yu. B. KAPLAN, D. M. GORELOV, A. KORNIEVSKY, G. O. PALIY, N. I. PELIVANOVA, *The state of development of civil society in Ukraine: The path and keys for another 30 years*. National Institute for Strategic Studies, 2021.

trade unions, and professional associations. The rapid growth in the number of civil society organisations continued after the Revolution of Dignity, with the number of organisations reaching 94,353 in 2021. Notably, the growth covered all practices of civic activity, including the formation of charitable organisations, which totalled 1,444 in 2021 (compared to 13,579 in 2015), the volunteer movement, civic initiatives in support of reforms and anti-corruption, etc. According to the Charities Aid Foundation Index,[93] Ukraine has one of the fastest growth rates, as it has risen 83 positions (from 103rd to 20th) from 2014 to 2021. And according to the Charities Aid Foundation,[94] Ukraine ranks 7th in the global ranking. However, according to Charities Aid Foundation,[95] Russia is also gradually improving its position. In 2014, it was ranked 126th, in 2021 – 67th, and in 2024 it was already 35th. This, at the same time, proves the effectiveness of the state in broadly supporting the "loyal civil sector" and explains the real involvement of Russian society in the waging of the war of aggression in Ukraine, as charity and volunteering also means assistance to the occupying forces on Ukrainian soil. Additionally, the 2024 report indicated that both Ukraine and Russia have proven to be the most productive in the long term in terms of charity and volunteering.

Therefore, overall, Ukraine is slowly but surely demonstrating positive dynamics in strengthening civil society and building the institutional capacity of NGOs, allowing the country to move closer to the countries with the highest civil society resilience, as determined by a score range from 1 to 3. Thus, as of 2022, Ukraine's score was only 0.2 greater than Poland's (2.9) and better than other countries in the region, such as Moldova (3.7), Georgia (4), Hungary (4), Serbia (4.3), and evidently Russia (5.1) and Belarus (6) (lower scores indicate greater resilience). In contrast, Russia has been steadily moving towards a deterioration in the sustainability and effectiveness of CSOs, and this trend was ob-

93 Charities Aid Foundation, *CAF World Giving Index: A global pandemic special report,* 2021. https://www.cafonline.org/docs/default-source/about-us-research/cafworldgivingindex2021_report_web2_100621.pdf

94Charities Aid Foundation, *World Giving Index.* 2014. https://www.cafonline.org/docs/default-source/about-us-publications/caf_wgi2014_report_1555awebfinal.pdf

95Charities Aid Foundation, *World Giving Index.* 2024. https://www.cafonline.org/docs/default-source/inside-giving/wgi/wgi_2024_report.pdf served across all seven indicators.

The crucial factor in the sustainable strengthening of civil society in Ukraine was the experience of two large-scale and long-term mobilisation campaigns that became catalysts for organised civic activity, helped position new leaders, and formed new centres and directions to unite activists, illustrated the significance and possibility of collective control over the government, 'wrote' a success story, and rewrote the old social contract that did not suit the majority of citizens. At the same time, in Russia, the defeat of civil protests and the success of the authorities in gradually institutionalising legislative restrictions on the activities of public associations became a verdict for the organised public in its efforts to influence socio-political processes, control the actions of the authorities and shape the political agenda.

4. Discussion

The findings of the conducted study, particularly the World Values Survey on satisfaction with their political system, revealed a much stronger desire for democracy among Ukrainians than among Russians. Liu[96] also noted that Ukraine as a state has undergone a democratic revolution that opposed authoritarian Russia. Furthermore, the results of the World Values Survey also showed a positive trend in the answers of Ukrainian respondents and a negative trend in the answers of Russians. Considering this, Kołczyńska[97] also added that a quality higher education system is closely linked to democratic values regardless of the level of democracy in a country, but this link is strongest in democratic countries. Public support also helps to sustain democracy and prevent its backsliding,[98] while its very presence increases the growth of innovation[99] and the economy.[100]

96 Z. LIU, *News framing of the Euromaidan protests in the hybrid regime and the liberal democracy: Comparison of Russian and UK news media*, in *Media, War & Conflict*, 2022, 15(4), pp. 407–426.

97 M. KOŁCZYŃSKA, *Democratic values, education, and political trust*, in *International Journal of Comparative Sociology*, 2020, 61(1), pp. 3–26.

98 C. CLASSEN, *Does public support help democracy survive?*, in *American Journal of Political Science*, 2019, 64(1), pp. 118–134.

99 Q. J. WANG, G. F. FENG, H. J. WANG, C. P. CHANG, *The impacts of democracy on innovation: Revisited evidence*, in *Technovation*, 2021, 108, article no. 102333.

100 S. M. NGUEA, A. G. NOULA, I. NOUMBA, *Financial globalization and democracy: implications for economic growth in African countries*, in *Journal of the Knowledge Economy*, 2024, 15, pp.

The above was the result of a difference in the political dimension in the mid-2000s, as political rights and civil liberties became a priority for Ukraine's development during the Orange Revolution. At the same time, in Russia, the 'suppression' of all freedoms was beginning to be felt. As Reuter and Szakonyi,[101] in 2000, Russia's young democracy evolved into what modern political scientists call electoral democracy. That is, a phenomenon where democratic institutions of power adhere to authoritarian methods of governance. Fröhlich[102] came to an analogous conclusion, noting a clear improvement in civil and political freedoms in Ukraine after the Orange Revolution, while in Russia, the indicators have been steadily declining in the first two decades of the new millennium. The religious factor, along with the heterogeneity of the cultural space, also played a role in shaping the political future of the two states. According to Bornio,[103] the heterogeneity of the former Soviet space and Russia's historically established imperial ambitions have led to the instrumentalization of conflicts throughout the 'near abroad' as a means of slowing down the Euro-Atlantic development of the former Soviet republics. The construction of authoritarianism in modern Russia is also confirmed by Aktürk,[104] who noted that every neo-imperial discourse legitimises itself with reference to a particular civilisational identity, which is relevant to the ROC.[105] In this context, Chatterje-Doody and Tolz[106] added that neo-authoritarian regimes use the mediated memory of the past to legitimise their regimes. As a result, Russia in the Putin era can be considered a case of bureaucra-

---

3355–3379.

101 O. J. REUTER, D. SZAKONYI, *Party politics and voting in Russia*, in *Russian Politics Today: Stability and Fragility*, edited by Sarah A. Wengle, Cambridge University Press, 2022, pp. 56–80.

102 C. FROHLICH, *Unfinished revolutions: The post-Soviet crisis of governance in Ukraine*, in *Global Policy*, 2023, 14(S4), pp. 77–89.

103 J. BORNIO, *Ethnic heterogeneity as a potential target of active measures of Russia: Identification of vulnerabilities of Polish-Ukrainian relations*, in *Yearbook of the Institute of Central and Eastern Europe*, 2020, 18(3), pp. 27–47.

104 Ş. AKTURK, *Nationalism and religion in comparative perspective: A new typology of national-religious configurations*, in *Nationalities Papers*, 2022, 50(2), pp. 205–218.

105 The ROC spoke about the mission of Russian civilization, 2015. https://ua.korrespondent.net/world/russia/3469859-u-rpts-rozpovily-pro-misiui-rosiiskoi-tsyvilizatsii

106 P. N. CHATTERJE-DOODY, V. TOLZ, *Regime legitimation, not nation-building: Media commemoration of the 1917 revolutions in Russia's neo-authoritarian state*, in *European Journal of Cultural Studies*, 2020, 23(3), pp. 335–353.

tic authoritarianism.[107]

As for the development of Russia in 2000, Putin's coming to power returned the country to even greater de-democratisation, 'suppression' of media freedom and other aspects of the introduction of an authoritarian system in the state. In this regard, Lewis[108] noted that although for some time the regime in Russia was studied as isolated due to a series of historical features, in 2000 and 2010 the entire world was already familiar with the so-called "Putinism" as a new authoritarian policy. Kinossian and Morgan[109] noted the inconsistency in the actions of Russia's authoritarian circles. Specifically, economic mega-projects competed with the political views of the Russian authorities aimed at isolation and confrontation with the Western world. A striking example of the shift away from democracy was the difference in the elections to state authorities in Ukraine and Russia. As for the Russian parties, the case even reached the ECtHR, as also reported by Müller.[110] As for Ukraine, the period of 2000 was characterised by attempts to balance between the east and the west under the presidency of Leonid Kuchma, and in the next presidential election in an attempt to put Viktor Yanukovych in office. However, the scale of the fraud led to the Orange Revolution as one of the most democratic stages in the development of Ukrainian statehood. In this context, Mitchell[111] added that the nature of a series of revolutions, including the Orange Revolution, although leading to regime change, also led to new semi-democratic regimes becoming increasingly corrupt and weak over time. While both the factual level of democracy and public opinion on its significance increased, this has not changed Ukraine's post-Soviet institutional legacy. In this

107 J. EVERETT, *Russia in the Putin era – A case of bureaucratic authoritarianism?*, in *New Perspectives*, 2022, 30(1), pp. 47–67.

108 D. G. LEWIS, *Russia's new authoritarianism: Putin and the politics of order*. Edinburgh University Press. https://www.jstor.org/stable/10.3366/j.ctv10kmcxz

109 N. KINOSSIAN, K. MORGAN, *Authoritarian state capitalism: Spatial planning and the megaproject in Russia*, in *Environment and Planning A: Economy and Space*, 2023, 55(3), pp. 655–672.

110 A. MULLER, *The European court of human rights and the rise of authoritarianism in Russia*, in *European Populism and Human Rights*, Brill, 2020, pp. 215–255.

111 L. A. MITCHELL, *The color revolutions. Successes and limitations of non-violent protest*, in *Handbook of Revolutions in the 21st Century*, edited by Jack A. Goldstone, Leonid Grinin, Andrey Korotayev, Springer, 2022, pp. 435–445.

regard, Terzyan[112] added that substantial negative features of the Ukrainian party system have not undergone radical changes after the revolutions, and thus organisational weakness, vague ideological platforms, lack of accountability, and communication with voters, etc., still persist. The emergence of a 'default pluralism' in Ukraine was a consequence of the historical division of the country, disorganisation and political underpinnings of Ukrainian statehood, which Way[113] also agrees with.

The Russian government's move away from democracy has also been documented in numerous investigations into the number of laws, regulations, etc., that have made it more challenging for NGOs and associations to operate, increased media censorship, etc.[114] Daucé and Loveluck[115] also addressed censorship, namely the Russian government's close attention to the national online search engine industry. Specifically, this concerned the protests of 2011-2012 and the annexation of Crimea. In fact, according to Kadivar,[116] in case of the defeat of protest movements, post-revolutionary authoritarian regimes destroy all independent sources of power and competing organisational structures of society and strengthen the coercive apparatus. Yudin[117] added that Russia under Putin is an example of a prebiscitary democracy. Therefore, the defeat of the protests can be considered a major factor in the stabilisation of the authoritarian system, which has overcome the challenges and managed to mobilise and repel socio-political resistance. In the case of Ukraine, the relative stability of democratisation is largely conditioned by the simultaneous coexistence of two different structural factors: the strength of society (as a product of socio-economic development) and the weakness of the authoritarian regime (as a product of state incapacity). Accor-

112 A. TERZYAN, *Towards democratic consolidation? Ukraine after the revolution of dignity*, in *Open Political Science*, 2020, 3, pp. 183–191.

113 L. A. WAY, *"The party of power": Authoritarian diaspora and pluralism by default in Ukraine*, in *Democratization*, 2021, 28(3), pp. 484–501.

114 K. KETNERS, *Adaptation of State Security to Modern Military Operations and Terrorist Risks in the World,* in *Space and Culture India*, 2025, 13(1), pp. 1–5.

115 F. DAUCÉ, B. LOVELUCK, *Codes of conduct for algorithmic news recommendation: The Yandex.News controversy in Russia*, in *First Monday*, 2021, 26(5).

116 M. A. KADIVAR, *Mass mobilization and the durability of new democracies*, in *American Sociological Review*, 2018, 83(2), pp. 390–417.

117 G. YUDIN, *The war in Ukraine: Do Russians support Putin?*, in *Journal of Democracy*, 2022, 33(3), pp. 31–37. https://muse.jhu.edu/pub/1/article/860242

ding to the researchers, third-wave democracies demonstrate the dependence of their ability to self-preserve on the weakness of the authoritarian regime, which is unable to build an effective bureaucracy, manage budget deficits, ensure full control over local authorities and monopoly control over the media.[118] The elections to the State Duma of Russia also demonstrated that with the coming to power of an authoritarian leader, a one-party system of government is actually established. In this regard, Moraski[119] added that in authoritarian systems, competition between candidates for high political office is resolved even by extra-constitutional means.

Another illustrative example of the establishment of democratic values and the rollback of autocracy is the degree of sustainability of CSOs. In Ukraine, this level was greater even in peacetime, averaging 3.5 points until 2014, according to reports by the US Agency for International Development. However, Pietrzyk-Reeves[120] noted that Russia, despite its consolidated autocracy, demonstrates a stronger level of civic participation than Ukraine. This was also reported by Mazepus et al.,[121] who noted that ties between Ukrainian and Russian CSOs have largely collapsed since Russia's annexation of Crimea, and some of the leaders of Russian CSOs have even emigrated to Russia or joined separatist groups. Despite Ukraine's successes in a series of global rankings, there are also problems other than the war that prevent it from embarking on a path of sustainable development. For instance, according to Umland,[122] the rule of law and the propensity for corruption still do not allow for the creation of a legal and business environment for foreign companies.

---

118 S. LEVITSKY, L. A. WAY, *Democracy's surprising resilience*, in *Journal of Democracy*, 2023, 34(4), pp. 5–20.

119 B. MORASKI, *Response to Jessica Pisano's review of party politics in Russia and Ukraine: Electoral system change in diverging regimes*, in *Perspectives on Politics*, 2023, 21(2), p. 687.

120 D. PIETRZYK-REEVES, *Rethinking theoretical approaches to civil society in Central and Eastern Europe: Toward a dynamic approach*, in *East European Politics and Societies*, 2022, 36(4), pp. 1335–1354.

121 H. MAZEPUS, A. DIMITROVA, M. FREAR, T. CHULITSKAYA, O. KEUDEL, N. ONOPRIYCHUK, N. RABAVA, *Civil society and external actors: how linkages with the EU and Russia interact with socio-political orders in Belarus and Ukraine*, in *East European Politics*, 2021, 37(1), pp. 43–64.

122 A. UMLAND, *How the west can help Ukraine: Three strategies for achieving a Ukrainian victory and rebirth*, in *Portuguese Journal of Political Science*, 2023, 19, pp. 85–98.

Thus, comparing the results of the present study with the findings of a series of researchers helped to understand the trends and state of Ukrainian democracy and aspects of authoritarianism in Russia. Specifically, the statements regarding the partial ineffectiveness of the colour revolutions were significant for complementing the findings of the present study, as a few years later the regime in the country again began to be characterised by semi-democratic features. Furthermore, despite the democratic achievements in Ukraine, the problem of rampant corruption does not allow for the creation of a favourable business environment in the country.

5. Conclusions

The study demonstrated the difference in the transformation of political rights and civil liberties in Ukraine and Russia. The period of 1990 and early 2000 did not have substantial differences in both countries. However, starting around the 2003 parliamentary elections in Russia, where the United Russia party won a majority of seats in the Duma, and the 2004 Orange Revolution in Ukraine, the situation has undergone dramatic changes. Consequently, according to the Freedom House ratings, Ukraine began to be positioned as a free country, while Russia, on the contrary, moved from neutral to non-free status. The impact of these events has gradually established Ukraine as a state committed to democratic values, while Russia has been in an authoritarian retreat for many years.

It was thoroughly investigated that the percentage of Ukrainians and Russians for whom commitment to democracy is a vital component in the context of state development is radically different. According to the latest World Values Survey, these figures are 43% and 23%, respectively. However, it is worth considering Russia's full-scale invasion of Ukraine in 2022 and the KIIS poll, when almost 60% of Ukrainians considered it necessary to have a democratic system in the country. As for the Russians, as many as 66% as of the first half of 2024 would vote for the current president in the upcoming elections. Thus, Ukrainian society has demonstrated a significant major increase in support for democratic ideals, while in Russia, the level of support for democracy stayed low, which underscores the fundamental differences in the political orientations of Ukrainian and

Russian societies.

In addition to the above, it was proved that one of the aspects of democratic development of a state is not only the presence of CSOs, but also a great level of their sustainability in terms of the legal environment, advocacy, public image, etc. Accordingly, from 2005 to 2014, Ukrainian and Russian CSOs did not differ substantially, although Ukrainian CSOs were more resilient. However, with the beginning of Russia's aggression against Ukraine in 2014, the resilience of Russian CSOs dropped to a historic 5.1 points, while Ukrainian CSOs are among the most resilient in Eastern Europe and Eurasia, second only to Polish CSOs. Accordingly, numerous repressive measures and narrowing of the space for civil society in Russia further contributed to the authoritarian breakdown in the country, while Ukrainian CSOs became one of the key players in promoting democratic reforms, values, and ideals. Apart from the above, the role of charity and volunteering in Ukraine has greatly increased, ranking 103rd in 2014 and 7th in 2024 according to the Charities Aid Foundation. However, in this context, volunteering and charity in Russia has also improved, suggesting that Russian society can be mobilised to support the country's aggressive ambitions.

The limitations of this study included the possible subjectivity of sociological surveys and limited access to verified information due to state control and censorship in Russia. Future research on this subject could focus on the role of CSOs as a force in building Ukraine's European integration course. Furthermore, historical aspects of the development of ideological aspects of authoritarianism in Russian society may be vital to consider.

Ainura Ryspaeva
Associate Professor, PhD
Department of Finance, Analysis and Accounting
I. Razzakov Kyrgyz State Technical University
ainuraryspaeva9@gmail.com

Remi Raher
Associate Professor, PhD
Laboratoire ESPI2R
r.raher@outlook.com

Emilia Milanova
Chief Assistant Doctor
Faculty of Economics and Management
University of Agribusiness and Rural Development
e-milanova@hotmail.com

Anarbubu Sherbekova
Professor, Full Doctor
Department of Finance, Analysis and Accounting
I. Razzakov Kyrgyz State Technical University
a_sherbekova@outlook.com

Lukasz Kozera
Professor, Full Doctor
Institute of Law, Economics and Administration
University of the National Education Commission
lkozera4@hotmail.com

The role of the state administration in ensuring the safety of the digital economy in France, Poland, Bulgaria and Kyrgyzstan

ABSTRACT

The aim of this study was to identify the specifics and differences in approaches to digital security in the public administration systems of France, Poland, Bulgaria and Kyrgyzstan.

The theoretical research was based on a descriptive method, enabling analysis of legal regulation, institutional frameworks and strategic documents.

The study found that France has a structured digital security model based on the Digital Sovereignty Strategy. The Digital Republic Act and Law No. 2004-575, regulate user rights, digital ethics and platform responsibility. The General Data Protection Regulation and Directive on ePrivacy ensure high personal data protection, supported by institutions such as the "Commission nationale de l'informatique et des libertés" and the National Agency for Information Systems Security.
Poland prioritized strengthening cyber defence through the Act on the National Cybersecurity System and the National Cybersecurity Strategy of Poland for 2019-2024. The Cyber Shield program became a tool of direct budget investment in cyber infrastructure.
In Bulgaria, gradual development of digital services was identified under the National Program "Digital Bulgaria 2025" and the Electronic Government Act, though issues with implementation and interagency coordination were noted.
Kyrgyzstan follows a transformation model with strong digital inclusion, implemented via the Concept of Digital Transformation for 2024-2028, the "Tunduk" platform, and activities of the State Institution "Kizmat".
Overall, the results showed that France and Poland prioritize preventive regulation and strategic planning, while Bulgaria and Kyrgyzstan emphasize expanding access to digital services.
The practical significance of the study lies in substantiating the directions of harmonization of digital policy.

KEYWORDS: Cybersecurity – Public Governance – Regulatory Framework – Infrastructure Development – Risk management

1. Introduction

The growing dependence of economies on digital technologies is accompanied by the emergence of new risks: cyberattacks, data leaks, disruptions in the functioning of digital infrastructure. In response to these challenges, public administration is taking on a key role – from developing a regulatory framework to coordinating actions to ensure digital security. Bulgaria, France, Kyrgyzstan and

Poland demonstrate different approaches to protecting the digital environment, which allows us to compare the effectiveness of administrative decisions and identify models that can increase resilience to threats.

The low level of e-government and digital administrative services remains a significant challenge for public administration[1]. This topic was addressed by Kirilova and Naydenov[2], who analysed the state of e-government in Bulgaria compared to other European Union (EU) countries. The study revealed a significant lag in terms of transparency, cross-border availability of services, electronic identification and digital interaction. The low efficiency of electronic administrative services and their low level of use remain a significant challenge for public administration. This was investigated by Yordanova[3], who analysed the regulatory framework, service principles and the state of digital transformation in Bulgaria. The author focused on the implementation of integrated services, electronic identification and a single digital architecture, while noting that only 31.5% of citizens interacted with state bodies online.

In the context of digital transformation, weak interdepartmental coordination and limited implementation of comprehensive cyber security solutions remain obstacles to effective e-governance[4]. Kadyraliev et al.[5] examined the development of a unified digital security system in Kyrgyzstan, focusing on legal regulation, technical barriers, and staffing. The authors noted positive steps in institutional strengthening and support for state digital policy. The ineffectiveness of digital policy coordination at the European Union and

1 N. MUSAYEVA, M. ALIYEVA, L. GASIMOVA, and G. BAYRAMOVA, The Role of Blockchain Technology in Ensuring Transparency, Trust, and Auditing in Financial Markets: Prospects and Challenges. *Operations Research Forum*, 6(4), 2025, 167. https://doi.org/10.1007/s43069-025-00578-y.

2 K. KIRILOVA, and A.T. NAYDENOV, The state of e-government and digital administrative services in the Republic of Bulgaria. *Business Management*, 2, 2021, 5-20.

3 D. YORDANOVA, An overview of administrative services in the state administration in Bulgaria. *TEM Journal*, 14(2), 2025, 1689-1694. https://doi.org/10.18421/TEM142-66.

4 K. KETNERS, A. JAROCKIS, and M. PETERSONE, State budget system improvement for informed decision-making in Latvia. *Scientific Bulletin of Mukachevo State University. Series Economics*, 11(3), 2024, 86–99. https://doi.org/10.52566/msu-econ3.2024.86.

5 A., KADYRALIEV, A. ORUNTAYEVA, T. KAMCHYBEKOV, I. ABYSHOV, and A. BIGALI, The impact of digital technologies on the effectiveness of management in the agricultural sector of the Kyrgyz Republic. *Ekonomika APK*, 31(5), 2024, 35-44. https://doi.org/10.32317/ekon.apk/5.2024.35.

Member State levels makes it difficult to develop a targeted approach to ensuring digital security. Farrand and Carrapico[6] analysed the challenges associated with the coordination of EU digital strategies, drawing attention to the fragmentation of the regulatory framework, the complexity of interaction between national and national structures, and differences in the level of digital readiness of Member States.

While several studies have explored digital security and the transformation of public administrations, few have directly compared EU countries with transitioning economies like Bulgaria and Kyrgyzstan. Notably, Brzozowska-Rup et al.[7] analysed the impact of public administration on the development of the digital economy in Poland, but did not provide a comparative framework with other countries. This paper contributes to the literature by bridging this gap, providing a comparative institutional perspective across countries with different levels of digital infrastructure, legal maturity, and governance capacity.

The European Union's (EU) drive to strengthen digital regulation is facing resistance from individual states, posing challenges to digital sovereignty. Hulkó et al.[8] analysed how current European initiatives – Digital Services Act (DSA)[9], Digital Markets Act (DMA)[10], European Media Freedom Act (EMFA), and Artificial Intelligence (AI)[11] regulation-affect the balance between national self-deter-

---

6 B. FARRAND, and H. CARRAPICO, Digital sovereignty and taking back control: From regulatory capitalism to regulatory mercantilism in EU cybersecurity. *European Security*, 31(3), 2022, 435-453. https://doi.org/10.1080/09662839.2022.2102896.

7 K. BRZOZOWSKA-RUP, M. NOWAKOWSKA, and M. ZDRADZISZ, Cloud computing in the Polish public administration: Current state and development prospects. *Technological Forecasting and Social Change*, 205, 2024, 123500. https://doi.org/10.1016/j.techfore.2024.123500.

8 G. HULKÓ, J. KÁLMÁN, and A. LAPSÁNSZKY, The politics of digital sovereignty and the European Union's legislation: Navigating crises. *Frontiers in Political Science*, 7, 2025, 1548562. https://doi.org/10.3389/fpos.2025.1548562.

9 Regulation (EU) No. 2022/2065 of the European Parliament and of the Council "On a Single Market for Digital Services and amending Directive 2000/31/EC (Digital Services Act) (Text with EEA relevance)", 2022. https://eur-lex.europa.eu/eli/reg/2022/2065/oj/eng.

10 Regulation (EU) No. 2022/1925 of the European Parliament and of the Council "On Contestable and Fair Markets in the Digital Sector and Amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act) (Text with EEA relevance)", 2022. https://eur-lex.europa.eu/eli/reg/2022/1925/oj/eng.

11 Regulation (EU) No. 2024/1689 of the European Parliament and of the Council "Laying Down Harmonised Rules on Artificial Intelligence and Amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial

mination and a single legal field. The authors examined new challenges posed by cyber threats, control over personal data, and the dominance of global technology corporations

The insufficient development of digital competence of civil servants and the absence of comprehensive mechanisms to support digital transformation in the public sector make it difficult to adapt to new challenges. This was analysed by Obelovska et al[12], who studied the impact of digital skills, organizational culture and leadership on the readiness of public administration for digitalization. It was found that the level of digital competences, trust in change and support from management directly affect the effectiveness of digital transformation. The authors also emphasized the importance of continuous learning and improving communication between government bodies.

The insufficient level of ethical and legal regulation of artificial intelligence creates risks for public administration in the digital environment[13]. This was investigated by Turillazzi et al.[14], who analysed the potential and challenges of using AI in the EU public sector. The authors pointed to the low effectiveness of existing regulatory tools, weak regulatory certainty and limited practical experience of public institutions.

Despite the availability of digital transformation strategies and regulatory initiatives, current research lacks comprehensive assessment of their effectiveness, regional disparities, socio-economic impacts, and adaptability to national political contexts – all of which require further in-depth analysis.

The purpose of this study was to determine the specifics of the influence of public authorities on the formation of a secure digital environment in France, Poland, Bulgaria and Kyrgyzstan. Within the framework of achieving this goal,

Intelligence Act) (Text with EEA relevance)", 2024. https://eur-lex.europa.eu/eli/reg/2024/1689/oj/eng.

12 K. OBELOVSKA, A. ABZIATOV, A. DOROSHENKO, I. DRONYUK, O., LISKEVYCH, and R. LISKEVYCH, Analysis of digital skills and infrastructure in EU countries based on DESI 2024 data. *Future Internet*, 17(6), 2025, 228. https://doi.org/10.3390/fi17060228.

13 K. MAULENOV, S. KUDUBAYEVA, and B. RAZAKHOVA, Modern Problems of Face Recognition Systems and Ways of Solving Them. *Revue d'Intelligence Artificielle*, 37(1), 2023, 209–214. https://doi.org/10.18280/ria.370126.

14 A. TURILLAZZI, M. TADDEO, L. FLORIDI, and F. CASOLARI, The Digital Services Act: An analysis of its ethical, legal, and social implications. *Law, Innovation and Technology*, 15(1), 2023, 83-106. https://doi.org/10.1080/17579961.2023.2184136.

the following tasks were set: to analyse modern approaches to regulating digital risks at the level of public administration in individual European countries; to investigate institutional mechanisms that ensure cybersecurity, personal data protection and the stability of digital infrastructure in the context of the development of the digital economy.

2. Methodology

As part of the theoretical study conducted from May 2024 to May 2025, an analysis of the role of public administration in ensuring digital security was carried out using the examples of France, Poland, Bulgaria and Kyrgyzstan. The choice of these countries is justified by the desire to compare digital policy models of EU countries with a high level of institutional capacity (France and Poland) and states facing the challenges of fragmentation and limited resources (Bulgaria and Kyrgyzstan). Despite Bulgaria's membership in the EU, it demonstrates features of post-socialist digital transformation, which allows comparing its experience with the practices of Kyrgyzstan. This approach made it possible to assess differences in regulatory models and prospects for harmonizing digital security between the EU and countries with economies in transition.

The methodology used is a descriptive comparative analysis of the legal frameworks and institutional mechanisms of the countries studied. Each country was evaluated based on several criteria: (1) cybersecurity regulation, (2) personal data protection, (3) digital infrastructure, and (4) institutional mechanisms for managing digital security.

The study presented the legislative model of France, which covers the strategy of digital sovereignty, the use of cloud technologies in the public sector, as well as institutional responsibility for digital security. The activities of key bodies such as the Autorité de régulation de la communication audiovisuelle et numérique (ARCOM)[15] and the Commission nationale de l'informatique et des libertés(CNIL)[16] are described, as well as the application of pan-European regulatory

15 Audiovisual and Digital Communication Regulatory Authority, Studies, reviews and reports, 2025. https://www.arcom.fr/en/find-out-more/studies-and-data/studies-reviews-and-reports.

16 National Commission on Informatics and Liberty, Media library, 2025. https://www.cnil.fr/fr/mediatheque?field_scald_collection_tid=31.

acts – the General Data Protection Regulation[17] and the Directive No. 2002/58/EC of the European Parliament and of the Council "Concerning the Processing of Personal Data and the Protection of Privacy in the electronic Communications Sector"[18]. The French "Penal Code"[19] was analysed in relation to cybercrime, in particular Article 323, known as the "Godfrey Law", which allowed to outline the legal liability for violations of digital security. The study aimed to determine the balance between national sovereignty policies and the implementation of EU norms.

The study of Poland focuses on the Act on the National Cybersecurity System[20] and the Cybersecurity Strategy of the Republic of Poland for 2019-2024[21], which establish regulatory provisions in the field of cyber security. The government program "Cyber Shield" was also analysed, implemented in response to the growing threat to digital infrastructure.[22] The method of each content analysis will allow to determine the nature of the state response to cyber incidents and to assess the organizational mechanisms of institutional responsibility within the framework of digital policy. The consideration of digital governance in Bulgaria was implemented on the basis of the National Program "Digital Bulgaria 2025"[23], which seeks strategic directions for the digitalization of the public

17 Regulation (EU) No. 2016/679 of the European Parliament and of the Council "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation) (Text with EEA relevance), 2016. https://eur-lex.europa.eu/eli/reg/2016/679/oj/eng.

18 Directive No. 2002/58/EC of the European Parliament and of the Council "Concerning the Processing of Personal Data and the Protection of Privacy in the electronic Communications Sector (Directive on Privacy and Electronic Communications)", 2002. https://eur-lex.europa.eu/eli/dir/2002/58/oj/eng.

19 PENAL CODE, 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006070719/2025-09-24.

20 Act on the National Cybersecurity System, 2018. https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20180001560/T/D20181560L.pdf.

21 MINISTRY OF DIGITAL AFFAIRS, Cybersecurity strategy of the Republic of Poland for 2019-2024, 2019. https://www.enisa.europa.eu/sites/default/files/ncss-map/strategies/reports/PL_NCSS_2019_en.pdf.

22 D. VIALKO, Poland to allocate 3 billion zlotys for cybersecurity after Russian cyberattack. 2024. https://newsukraine.rbc.ua/news/poland-to-allocate-3-billion-zlotys-for-cybersecurity-1717451067.html.

23 M. JĀKOBSONE, Bulgaria – Digital Bulgaria 2025 national programme, 2022. https://digital-skills-jobs.europa.eu/en/actions/national-initiatives/national-strategies/bulgaria-digital-bulgaria-2025-national-programme.

sector. Particular attention is paid to regulatory support, in particular the Strategy for the Development of Electronic Government[24] and the Electronic Government Act (2020). The structure of administrative services and the main barriers to digital security are studied, including weak coordination between institutions, insufficient digital training of personnel and a system of risk fragmentation.[25] This analysis was carried out with the aim of clarifying problem areas in ensuring the integrity of the state digital policy.

In the case of Kyrgyzstan, the Concept Digital Transformation of the Kyrgyz Republic for 2024-2028[26] was studied, which fixed the strategic vector of digital reforms. The activities of the State Institution "Kizmat"[27], the single digital platform "Tunduk"[28] and the mobile application that ensures the provision of electronic services to citizens are described. Approaches to digital inclusion in conditions of socio-economic instability were studied, as well as practices of access to services in remote communities.[29,30] This turned out to reveal institutional flexibility in the management of digital processes. The final element was the formation of a comparative assessment of the approaches of France and Poland, as well as Bulgaria and Kyrgyzstan, regarding institutional responsibility, the use of cloud solutions, the regulatory framework and the level of digital readiness. In addition, the study explored the prospects for harmonizing digital security approaches between the analysed countries, with an emphasis on experience transfer, modernization of administrative procedures, and strengthening the resilience of state institutions in the digital environment.

24 REPUBLIC OF BULGARIA STATE E-GOVERNMENT AGENCY, Strategic documents – State Agency "Electronic Government", 2025. https://e-gov.bg/wps/portal/agency-en/strategy-policy/startegical-documents#:~:text=Strategy%20for%20the%20development%20of,within%20the%20individual%20administrative%20bodies..

25 Bulgaria 2025 Digital Decade Country Report, 2025. https://digital-strategy.ec.europa.eu/en/factpages/bulgaria-2025-digital-decade-country-report.

26 MINISTRY OF DIGITAL DEVELOPMENT OF THE KYRGYZ REPUBLIC, Concept Digital Transformation of the Kyrgyz Republic for 2024-2028, 2025. https://digital.gov.kg/en/activities/konczkpcziya-czifrovoj-transformaczii-kyrgyzskoj-respubliki-na-2024-2028-gody/.

27 Kyrgyzstan to enhance public services through partnership between MEGA and Kyzmat, 2025. https://www.trend.az/casia/kyrgyzstan/4037876.html.

28 TUNDUK, Information systems operated by the state enterprise "Tunduk", 2025. https://tunduk.gov.kg/en/pages/2-information-systems.

29 United Nations Development Programme, Annual report 2024, 2025a. https://www.undp.org/sites/g/files/zskgke326/files/2025-04/otchet_dlya_pechati.pdf.

30 S. KEMP, Digital 2025: Kyrgyzstan, 2025. https://datareportal.com/reports/digital-2025-kyrgyzstan.

3. The role of public administration in ensuring digital security in France and Poland

Four main dimensions were used to guide the comparative analysis: (1) cybersecurity regulation, (2) personal data protection, (3) digital infrastructure, and (4) institutional coordination mechanisms. The results show that France and Poland adopt a structured, preventive approach to cybersecurity, supported by clear regulations and robust infrastructures. In contrast, Bulgaria and Kyrgyzstan, while less advanced in terms of regulation and infrastructure, focus on digital inclusion and expanding public digital services. These differences have direct implications for each country's ability to manage cyber threats and maintain citizens' trust.

France provides one of the most comprehensive regulatory approaches to digital security in Europe, combining national legislation with European directives and sector-specific acts. The core of this system is the Sécurité et Régulation de l'Espace Numérique (SREN) – Law No. 2024-449 aimed at Securing and Regulating the Digital Space[31], which aims to raise security standards in the digital environment and strengthen digital sovereignty. This law obliges both public institutions and private companies to implement advanced cybersecurity systems, provide ongoing training for staff and implement mandatory moderation mechanisms to remove illegal content – in particular hate speech, terrorist material or fraudulent activities. Particular attention is paid to mandatory age verification to protect minors, the implementation of filters against online fraud and the obligation to report digital incidents. Compliance with these provisions is monitored by the regulatory authorities Audiovisual and Digital Communication Regulatory Authority[32] and National Commission on Informatics and Liberty[33], with significant administrative and financial sanctions for non-compliance.[34]

31 Law No. 2024-449 aimed at Securing and Regulating the Digital Space, 2024. https://www.legifrance.gouv.fr/dossierlegislatif/JORFDOLE000047533100.

32 Audiovisual and Digital Communication Regulatory Authority, Studies, reviews and reports, 2025. https://www.arcom.fr/en/find-out-more/studies-and-data/studies-reviews-and-reports.

33 National Commission on Informatics and Liberty, Media library, 2025. https://www.cnil.fr/fr/mediatheque?field_scald_collection_tid=31.

Another key component is the system for protecting personal data. France applies the Law No. 78-17 "On Information Technologies, Data Files and Individual Liberties (as amended up to June 1, 2019), France"[35], which has been harmonized with the requirements of the General Data Protection Regulation (GDPR)[36] and Directive No. 2002/58/EC of the European Parliament and of the Council[37]. The GDPR requires all organizations that handle personal data to implement technical and organizational security measures, conduct a privacy impact assessment, and notify the CNIL and affected individuals in the event of a data breach. Fines for violations can reach EUR 20 million or 4% of a company's annual turnover.[38] In the field of digital platforms, France complies with European regulations, including the DSA and the DMA, which impose obligations on transparency, content moderation, user protection, and the prevention of market monopolization.[39] There is also a Code on the Protection of Consumer Rights in the Digital Environment, which establishes the liability of companies for the electronic services provided. In the field of combating cybercrime, France uses the "Penal Code"[40] (Article 323, known as the Godfrey Law), which provides for criminal liability for unauthorized access to information systems, data

34 S. BETTACH, and A. VUCHOT, France: The SREN Law and its impact on digital platforms, 2024. https://www.twobirds.com/en/insights/2024/france/la-loi-sren-et-son-impact-sur-les-plateformes-numeriques.

35 Law No. 78-17 "On Information Technologies, Data Files and Individual Liberties (as amended up to June 1, 2019), France", 2019. https://www.wipo.int/wipolex/en/legislation/details/18965.

36 Regulation (EU) No. 2016/679 of the European Parliament and of the Council "On the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation) (Text with EEA relevance), 2016. https://eur-lex.europa.eu/eli/reg/2016/679/oj/eng.

37 Directive No. 2002/58/EC of the European Parliament and of the Council "Concerning the Processing of Personal Data and the Protection of Privacy in the electronic Communications Sector (Directive on Privacy and Electronic Communications)", 2002. https://eur-lex.europa.eu/eli/dir/2002/58/oj/eng.

38 National Commission for Information Technology and Civil Liberties. Cybersecurity, GDPR: the best prevention against cyber risks, 2024. https://www.cnil.fr/sites/default/files/2024-05/cnil_cybersecurity_2024_en.pdf.

39 S. BETTACH, and A. VUCHOT, France: The SREN Law and its impact on digital platforms, 2024. https://www.twobirds.com/en/insights/2024/france/la-loi-sren-et-son-impact-sur-les-plateformes-numeriques

40 PENAL CODE, 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006070719/2025-09-24.

modification, obstruction of information processing and other IT offenses.

A special role in ensuring the resilience of the state digital infrastructure is played by laws on critical infrastructure facilities, which establish requirements for the cyber resilience of the energy, health, finance, etc. sectors. Control is carried out by the National Agency for Information Systems Security[41], which coordinates incident response measures and formulates requirements for critical infrastructure entities. Additionally, there is the Digital Republic Act[42], which promotes digital inclusion, net neutrality, and transparency in data processing, as well as the Loi pour la Confiance dans l'Économie Numérique (LCEN) – Law No. 2004-575 "On Confidence in the Digital Economy (as amended up to August 8, 2015), France"[43], which obliges digital providers to respond promptly to the detection of illegal content and cooperate with law enforcement agencies.

France is taking an integrated approach to regulating artificial intelligence (AI) and personal data protection, combining European legislation – notably the EU Artificial Intelligence Act[44] and the GDPR – with national legislation and the work of specialized bodies. The National Commission for Informatics and Liberties, which already oversees compliance with the GDPR and is preparing to take on the supervisory role under the AI Act, plays a key role in this process. The legislative implementation of the AI Act began in August 2024, with a phased implementation of the requirements by August 2025.[45] It provides for a differentiated risk system, which prohibits certain practices (such as social scoring), strict requirements for high-risk systems, and general ethical guidelines for systems with minimal risk. To comply with these rules, the CNIL has created a specialized unit to develop recommendations on the compatibility of AI with

41 FRENCH CYBERSECURITY AGENCY, Regulation, 2025. https://cyber.gouv.fr/en/regulation.

42 Law No. 2016-1321 for a Digital Republic, France, 2016. https://www.wipo.int/wipolex/en/legislation/details/16380.

43 Law No. 2004-575 "On Confidence in the Digital Economy (As Amended up to August 8, 2015), France", 2015. https://www.wipo.int/wipolex/en/legislation/details/15802.

44 EU Artificial Intelligence Act: Up-to-date developments and analyses of the EU AI Act, 2025. https://artificialintelligenceact.eu/.

45 B. MAY, D. ROCHE, A. KAHLAL, and L. MAILHAC, Artificial Intelligence 2025, 2025. https://practiceguides.chambers.com/practice-guides/artificial-intelligence-2025/france.

the law, and the newly created AI Security Institute INESIA[46] is responsible for the national assessment of models, their reliability and regulatory support, in particular in collaboration with the ANSSI agency. Particular attention is paid to transparency, accountability and compliance with ethical principles, based on the European "Ethical Recommendations for Trustworthy AI"[47] and the Paris Charter for the Development of AI for the Public Interest.[48]

In the field of personal data protection, France follows a strict approach enshrined in the GDPR, which ensures the protection of the rights of data subjects, the lawfulness of processing, the security of storage and the obligation to inform. The Law No. 78-17[49] complements the European regulation and establishes specific requirements, for example, for the processing of biometric, genetic and medical data. The CNIL is empowered to conduct investigations, impose fines and issue injunctions to eliminate violations. In the context of AI, particular attention is paid to the principle of "privacy by design", which involves integrating data protection standards already at the design stage of models. AI systems must adhere to principles such as purpose limitation, data minimization, algorithm transparency and time limits for information storage. Users have the right to know that their data is being used to train AI, and to request access, rectification, erasure or objection to their processing. The CNIL has also clarified the conditions for the reuse of open data for training models, emphasizing the need to exclude irrelevant information and comply with the restrictions of the GDPR.[50] At a practical level, the CNIL is issuing detailed guidance for developers and users of AI systems, which addresses the need to assess the impact on data protection, determine the legal grounds for processing, implement protection by

46 The Government announces the creation of the National Institute for the Evaluation and Security of Artificial Intelligence (INESIA), 2025. https://www.entreprises.gouv.fr/espace-presse/le-gouvernement-annonce-la-creation-de-linstitut-national-pour-levaluation-et-la.

47 Ethics guidelines for trustworthy AI, 2019. https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai.

48 The Paris Charter on Artificial Intelligence in the Public Interest, 2025. https://www.elysee.fr/en/emmanuel-macron/2025/02/11/the-paris-charter-on-artificial-intelligence-in-the-public-interest.

49 Law No. 78-17 "On Information Technologies, Data Files and Individual Liberties (as amended up to June 1, 2019), France", 2019. https://www.wipo.int/wipolex/en/legislation/details/18965.

50 F. SARDAIN, and C. ALLAVENA, Data Protection & Privacy 2025, 2025. https://practiceguides.chambers.com/practice-guides/data-protection-privacy-2025/france.

design in the system architecture and constantly comply with the principles of confidentiality. This approach, which combines supranational initiatives with national law enforcement practices, ensures a high level of responsibility in France when implementing AI technologies, as well as the consistent integration of human rights, digital ethics, and cybersecurity into the system of public governance of the digital economy.[51]

The digital security model in the Polish public administration system is based on a combination of a clear regulatory framework, strategic planning, a developed institutional infrastructure and innovative technological solutions. The basis of the regulatory framework is the Act on the National Cybersecurity System[52], which adapted the provisions of the EU Directive on Security of Network and Information Systems (NIS Directive) to national legislation. This law clearly defines the responsibilities of state bodies, critical service operators and digital providers, requiring them to implement effective cybersecurity measures, regular risk management and mandatory reporting of cyber incidents. The created system provides for the operation of several specialized Cyber Incident Response Teams (CSIRTs), which ensure operational response in three key domains: governmental (CSIRT GOV), civilian (CSIRT NASK) and military (CSIRT MON), thus forming a focused and effective cyber defence model.[53,54]

The strategic development of digital security is regulated by the National Cybersecurity Strategy of Poland for 2019-2024.[55] Its main goal is to strengthen cyber resilience and information protection in all sectors – public, military and private. The strategy provides for the implementation of risk management sy-

51 A.-L. VILLEDIEU, and M. HANTIOT, Data protection and cybersecurity laws in France, 2021. https://cms.law/en/int/expert-guides/cms-expert-guide-to-data-protection-and-cyber-security-laws/france.

52 Act on the National Cybersecurity System, 2018. https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20180001560/T/D20181560L.pdf.

53 K. ZURKUS, NIS directive met, Polish cybersecurity in effect, 2018. https://www.infosecurity-magazine.com/news/nis-directive-met-polish/.

54 MINISTRY OF DIGITAL AFFAIRS, Cybersecurity strategy of the Republic of Poland for 2019-2024, 2019. https://www.enisa.europa.eu/sites/default/files/ncss-map/strategies/reports/PL_NCSS_2019_en.pdf.

55 MINISTRY OF DIGITAL AFFAIRS, Cybersecurity strategy of the Republic of Poland for 2019-2024, 2019. https://www.enisa.europa.eu/sites/default/files/ncss-map/strategies/reports/PL_NCSS_2019_en.pdf.

stems, the development of information security standards, staff training, infrastructure development, as well as close interagency and international cooperation. From 2025, Poland plans to implement a new 10-year program "Cyber Shield", which provides for large-scale investments in the protection of critical infrastructure and the digitalization of the public sector.[56] The government has already reserved several billion zlotys for the implementation of these initiatives, in particular for the modernization of protection against cyberattacks, the number of which in 2023 increased by 300% compared to the previous year, mainly due to the activities of foreign hacking groups.[57]

From an organizational point of view, the leading role is played by the Ministry of Digital Affairs, in particular the Department of Cybersecurity, which is responsible for regulatory regulation, policy development and coordination of measures. The Government Commissioner for Cybersecurity ensures the implementation of policy decisions, while the National Cybersecurity Council performs an advisory function. In addition, numerous regulations concerning individual sectors and technologies (in particular cloud services) define technical requirements for state institutions and ensure that digital services meet the highest security standards. Technically, the Polish digital security model is based on the transition to cloud computing with a high level of data protection, the implementation of quantum-resistant cryptography, edge computing and artificial intelligence in digital services of the public sector[58]. All state authorities are obliged not only to implement cybersecurity measures, but also to conduct regular audits of the effectiveness of such measures. Particular attention is paid to improving the competences of personnel through training programs, as well as to raising the general level of awareness of citizens about cybersecurity. The Polish model combines prevention, rapid response to incidents, infrastructure development, in-

56 D. VIALKO, Poland to allocate 3 billion zlotys for cybersecurity after Russian cyberattack. 2024. https://newsukraine.rbc.ua/news/poland-to-allocate-3-billion-zlotys-for-cybersecurity-1717451067.html.

57 Poland Unveils Landmark Digital Strategy 2035: A Comprehensive Roadmap for Digital Transformation, 2024. https://decentcybersecurity.eu/poland-unveils-landmark-digital-strategy-2035-a-comprehensive-roadmap-for-digital-transformation/.

58 J. KUBICZEK and M. TUSZKIEWICZ, Intraday Patterns of Liquidity on the Warsaw Stock Exchange before and after the Outbreak of the COVID-19 Pandemic. *International Journal of Financial Studies*, 10(1), 2022, 13. https://doi.org/10.3390/ijfs10010013.

vestment in innovation and coordinated policy, making it one of the most systematic approaches to digital security in the public administration system in Central Europe.[59]

To gain a deeper understanding of approaches to ensuring digital security in public administration systems, it is appropriate to conduct a comparative analysis of the models adopted in France and Poland. Both countries are members of the European Union and thus actively implement EU-wide regulations such as the General Data Protection Regulation (GDPR) and the NIS Directive. At the same time, each country develops its own national initiatives based on the specifics of its administrative structure, technical infrastructure, and strategic priorities. The table 1 presented a comparison of the key elements of digital security in France and Poland, allowing the identification of similarities and differences in their approaches.

Table 1. Comparison of digital security models in public administration: France vs. Poland.

Criterion	France	Poland
Legal framework	Combination of EU acts: GDPR (Regulation (EU) No. 2016/679 of the European Parliament and of the Council…, 2016), DSA (Regulation (EU) No. 2022/2065 of the European Parliament and of the Council "On a Single…, 2022), DMA (Regulation (EU) No. 2022/1925 of the European Parliament and of the Council "On Contestable…, 2022)) with national laws: Law No. 2024-449 (2024), Law No. 2004-575 (2015), Digital Republic Act (Law No. 2016-1321 for…, 2016)	Implementation of the NIS Directive through the National Cybersecurity System Act (Poland: Announced amendment…, 2025); Cybersecurity strategy of the Republic of Poland for 2019-2024 (Ministry of Digital Affairs, 2019)
Key regulators	CNIL (data protection) (National Commission on Informatics and Liberty, 2025), ANSSI (cybersecurity), Audiovisual and Digital Communication Regulatory Authority (2025) (content), INESIA (AI) (The Government announces…, 2025)	Ministry of Digital Affairs, Government Plenipotentiary for Cybersecurity, CSIRT GOV/NASK/MON
AI regulation	Focus on EU AI Act (EU Artificial Intelligence, 2025); establishment of INESIA; CNIL oversight	No specific AI legal framework; integration of AI elements within public sector digital services
Personal data	GDPR combined with Law No. 78-17 (2019); strict CNIL oversight, "privacy	GDPR as the core; mandatory internal auditing mechanisms in

59 EUROPEAN COMMISSION, Digital Public Administration factsheet 2020, 2020. https://interoperable-europe.ec.europa.eu/sites/default/files/inline-files/Digital_Public_Administration_Factsheets_Poland_vFINAL.pdf.

protection	by design" principle	public sector institutions
Institutional structure	Multi-level system of regulators with clearly defined responsibilities	Centralized coordination via Ministry of Digital Affairs and CSIRTs; specialization of CSIRTs for public, civil, and defence sectors
Security instruments	Systemic requirements for online platforms, mandatory data impact assessments, content moderation, anti-fraud mechanisms	Incident response via CSIRTs, risk management, system auditing, transition to secure cloud infrastructure
National strategies	Comprehensive digital sovereignty frameworks, ethical AI regulation, combating disinformation	Ongoing Cybersecurity Strategy (2019-2024); implementation of the "Cyber Shield" program from 2025 for critical infrastructure protection
Level of investment in digital security	High, through centralized agencies, GDPR penalty system, and innovation support in AI	Significant public investment, particularly in infrastructure modernization and increasing resilience to cyber threats

[Source: compiled by the authors]

The analysis reveals that France builds its digital security model based on strict regulation, ethical standards, and national technological sovereignty. Poland, on the other hand, emphasizes institutional coordination, strategic planning, and a specialized incident response system. Despite a common EU legal foundation, the two countries have chosen different implementation approaches, highlighting the flexibility of the European system to adapt to national contexts. This study, unlike Sarjito[60] work, focused on the analysis of national approaches to ensuring digital security in France and Poland. Both studies examined the challenges of cyber threats and the significance of the GDPR, but Sarjito provided a general overview, while this study analyzed specific legislative acts, institutions and instruments, including the regulation of artificial intelligence. A. Sarjito's work did not present an in-depth assessment of the institutional structure and financial and technical support, which became key in this study.

A similar thematic focus was observed in Huixia[61], who emphasized the transformative impact of digital technologies on the structure of public administration. Both works recognize the key role of the state and the need to protect

60 A. SARJITO, Data security and privacy in the digital era: Challenges for modern government. *Scientific Journal of Public Administration*, 8(3), 2024, 1-13. https://doi.org/10.56071/jian.v8i3.933.

61 W. HUIXIA, Digitization of public administration in China: From e-government to digital government. *Bulletin of Taras Shevchenko National University of Kyiv. Public Administration*, 20(2), 2024, 56-62. https://doi.org/10.17721/2616-9193.2024/20-9/12.

personal data. However, Huixia mainly considered conceptual shifts, while this study focused on the analysis of national strategies, specific institutions and cybersecurity policies. In the work of Chen and Liu[62], attention was paid to the Chinese model of digital interaction between the state, the market and platforms. The authors showed a complex structure of coordination of digital transformation, but paid less attention to personal data, an aspect that was key in this study. A comparison with European approaches allows us to see the difference in priorities: in China, the emphasis is on centralized control, while in France and Poland, the balance between institutional regulation and user rights.

There is also an interesting parallel with the study by Zhou[63], in which digital governance was also examined through the prism of platform control, liability for data leaks and protection of digital rights. Zhou, however, focused on ethical challenges and information stability in the Chinese context, while this study focused on the legal detail of European instruments and inter-agency coordination. The work of Febiri et al.[64] deserves special attention due to its attempt to build a conceptual model of digital governance for Indonesia. Although both studies recognize the critical role of the state in digital transformation, the approaches differ significantly: while Febiri et al. focuses on strategic data management, this study shows real examples of the functioning of legislative and institutional mechanisms in the EU.

4. Peculiarities of state digital policy in Bulgaria and Kyrgyzstan

Compared to France and Poland, both Bulgaria and Kyrgyzstan face persistent barriers such as institutional fragmentation, limited inter-agency coordination, and resource constraints. The development of e-government and digital services in Bulgaria is taking place within the framework of a holistic state strategy

---

62 B. CHEN, and Y. LIU, Promotion and advancement of data security governance in China. *Electronics*, 13(10), 2024, 1905. https://doi.org/10.3390/electronics13101905.

63 Y. ZHOU, Data governance strategy guidance: Boost China's digital government construction towards high-quality development. In: *Proceedings of the 2024 8th International Seminar on Education, Management and Social Sciences*. Dordrecht: Atlantis Press, 2024, 1012-1018. https://doi.org/10.2991/978-2-38476-297-2_122.

64 F. FEBIRI, M.I. GARIBA, M. HUB, and R. PROVAZNIKOVA, The synergy between human factors, public digitalization and public administration in the European context. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(4), 2024, 100424. https://doi.org/10.1016/j.joitmc.2024.100424.

based on national programs, legislative acts and organizational structure aimed at ensuring the effective digital transformation of public administration. The central place in this process is occupied by the National Program "Digital Bulgaria 2025"[65], approved by the Council of Ministers in December 2019. It continued the priorities of the previous program of 2015 and is in line with the pan-European goals of digital growth. The main goal of the program is the complete transformation of public administration towards the provision of user-oriented electronic administrative services, with an emphasis on smart, sustainable and inclusive digital growth by 2025. The program covers the modernization of information and communication infrastructure, the development of system interoperability, ensuring a high level of network and information security. Digital Bulgaria 2025 identifies six key areas of action, including supporting shared e-government resources, promoting the use of cloud technologies, big data, artificial intelligence, blockchain solutions, and developing digital skills and cybersecurity. The program is accompanied by a roadmap for 2019-2023, which contains priority measures, responsible institutions and funding mechanisms, including over EUR 1.3 billion from the Recovery and Cohesion Funds.[66]

The previously established concept of digital governance was shaped by the e-Government Development Strategy for 2014-2020. It envisaged the creation of an effective and interconnected digital administration with secure identification, simple "single window" services and access to them 24/7. At the same time, problems with interaction between systems, requirements for the physical presence of users or the submission of original documents, as well as low popularization of services among citizens were recorded.[67] The institutional model for the provision of administrative services is based on the provisions of

65 M. JĀKOBSONE, Bulgaria – Digital Bulgaria 2025 national programme, 2022. https://digital-skills-jobs.europa.eu/en/actions/national-initiatives/national-strategies/bulgaria-digital-bulgaria-2025-national-programme.

66 Bulgaria 2025 Digital Decade Country Report, 2025. https://digital-strategy.ec.europa.eu/en/factpages/bulgaria-2025-digital-decade-country-report.

67 A. VODOPYANOV, Z. DZHUSUPOVA, C.V. FLIPOV, I.T. TAUSHANOVA, and D. DOICHINOVA, e-Government in Bulgaria: The journey to 2020 and the future ahead, 2021. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/650881631189254371.

the Strategy for the Development of Electronic Government[68] and the Law on Electronic Government.[69] The effectiveness of the system depends on coordination between numerous agencies to ensure the unification, integration and standardization of digital services. However, development is in many cases fragmented – projects are implemented in isolation, without sustainable centralized management and without a single administrative information system. This complicates integration and increases implementation costs. Efforts are ongoing to unify state registers, increase the interconnection of government systems and create a single e-government portal.[70]

The main barrier to the implementation of digital services remains an insufficient level of digital security. High-profile incidents, including the data leak from the National Revenue Agency, have raised concerns about the cyber resilience of government infrastructure. In this regard, the Digital Bulgaria 2025 program identifies building a secure digital environment as a priority. Among the main problems are insufficient preparedness for cyber threats, a weak authentication system, and the fragmentation of systems without a unified security management. Additional barriers include weak system interoperability, low trust in digital services, and limited digital skills among a segment of the population. Overall, Bulgaria demonstrates consistent implementation of e-government, but to ensure its resilience, it is necessary to strengthen cybersecurity, improve system integration, and increase the digital literacy of the population.[71]

In Kyrgyzstan, public administration plays a leading role in shaping the digital economy, providing institutional support for digital reforms, regulating the digital environment in the context of transformation, and promoting digital inclusion against the backdrop of socio-economic challenges. The priority of digi-

---

68 REPUBLIC OF BULGARIA STATE E-GOVERNMENT AGENCY, Strategic documents – State Agency "Electronic Government", 2025. https://e-gov.bg/wps/portal/agency-en/strategy-policy/startegical-documents#:~:text=Strategy%20for%20the%20development%20of,within%20the%20individual%20administrative%20bodies..

69 ELECTRONIC GOVERNMENT ACT, 2020. https://census2021.bg/wp-content/uploads/2020/01/Electronic_Government_Act_en.pdf.

70 A. VODOPYANOV, Z. DZHUSUPOVA, C.V. FLIPOV, I.T. TAUSHANOVA, and D. DOICHINOVA, e-Government in Bulgaria: The journey to 2020 and the future ahead, 2021. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/650881631189254371.

71 Bulgaria 2025 Digital Decade Country Report, 2025. https://digital-strategy.ec.europa.eu/en/factpages/bulgaria-2025-digital-decade-country-report.

tal transformation is enshrined at the state level in the Concept Digital Transformation of the Kyrgyz Republic for 2024-2028[72], approved by the President, which defines digital progress as a key criterion for the effectiveness of public administration. According to the document, all government bodies – from ministries to local governments – are obliged to implement digital technologies to optimize processes, reduce bureaucracy, and increase the efficiency of service delivery. Institutional support is implemented through the activities of the Ministry of Digital Development and Innovative Technologies, which coordinates digital initiatives and is responsible for their implementation. The centralized system for providing electronic services is implemented by the State Institution "Kizmat"[73], which provides citizens with access to online services. A single digital platform "Tunduk"[74] and a mobile application have been created, which facilitate interdepartmental data exchange and provide simplified access to services. In parallel, fintech infrastructure is developing – QR payments, bank cards and electronic wallets have become available even in remote regions. State bodies are actively cooperating with international organizations, in particular the United Nations Development Program, to adapt digital policy, increase digital literacy and strengthen partnerships in the field of technology.[75]

At the same time, the government regulates the digital environment, introducing laws and mechanisms that promote innovation. The launch of the digital som – a national digital currency that will affect most sectors of the economy is expected in 2025. Biometric identification of voters has been introduced, as well as an electronic system of interdepartmental interaction to increase transparency and security. Data compatibility between various state structures is ensured, which helps reduce duplication of information and increase management efficiency.

---

72 MINISTRY OF DIGITAL DEVELOPMENT OF THE KYRGYZ REPUBLIC, Concept Digital Transformation of the Kyrgyz Republic for 2024-2028, 2025. https://digital.gov.kg/en/activities/konczkpcziya-czifrovoj-transformaczii-kyrgyzskoj-respubliki-na-2024-2028-gody/.

73 Kyrgyzstan to enhance public services through partnership between MEGA and Kyzmat, 2025. https://www.trend.az/casia/kyrgyzstan/4037876.html.

74 TUNDUK, Information systems operated by the state enterprise "Tunduk", 2025. https://tunduk.gov.kg/en/pages/2-information-systems.

75 Kyrgyzstan is confidently advancing on the path of digital transformation, 2025. https://www.undp.org/kyrgyzstan/press-releases/kyrgyzstan-confidently-advancing-path-digital-transformation.

Cybersecurity is part of the digital readiness agenda, which has become particularly relevant during the COVID-19 pandemic.[76]

In the context of socio-economic instability, Kyrgyzstan pays special attention to digital inclusion. State policy is aimed at ensuring broad access to the Internet (penetration rate is 88.5%) and mobile communications, the number of connections of which exceeds the population. Digital services are developed taking into account the needs of vulnerable groups, and joint programs with the United Nations (UN) include digital skills training and awareness-raising. Cashless payments are actively supported, which contributes to reducing the digital divide, especially in rural regions.[77] Thus, the public administration of Kyrgyzstan plays a key role in shaping the digital economy, combining institutional coordination, regulatory flexibility and social inclusion. This approach, combined with international cooperation and the development of digital infrastructure, creates a favourable basis for the modernization of the economy on the basis of sustainable development.

A comparative analysis of the approaches of Bulgaria and Kyrgyzstan to public administration in the digital environment demonstrates both similar strategic orientations and differences due to institutional maturity, geopolitical context and the presence of international partnerships. Both countries officially declare the digital transformation of public administration as a national priority, enshrined in strategic development programs: Bulgaria – through the Digital Bulgaria 2025 initiative, and Kyrgyzstan – in the Digital Transformation Concept for 2024-2028. In both cases, centralized state platforms have been created: in Bulgaria – a single e-services portal with a system of register interaction, in Kyrgyzstan – the Tunduk platform and the Kizmat application. Structurally, Bulgaria has a developed multi-level system of interacting bodies, while Kyrgyzstan is focused on a centralized model based on the Ministry of Digital Development.

---

76 Advancing digital transformation in Kyrgyzstan: A joint effort for sustainable development, 2023. https://www.undp.org/kyrgyzstan/press-releases/advancing-digital-transformation-kyrgyzstan-joint-effort-sustainable-development.

77 S. KEMP, Digital 2025: Kyrgyzstan, 2025. https://datareportal.com/reports/digital-2025-kyrgyzstan.

International standards play a significant role in shaping the digital environment[78]. Bulgaria, as a member of the EU, is integrated into the framework of the European Union's digital strategies, such as the Digital Agenda, the EU Interoperability Framework, the Digital Economy and Society Index (DESI)[79], and also participates in Organisation for Economic Co-operation and Development (OECD)[80] initiatives. This contributes to standardization, legislative coherence, and the formation of a mature digital culture.[81] Kyrgyzstan, on the other hand, does not have a similar regional integration vector, but actively involves the support of international institutions – primarily United Nations Development Programme (UNDP)[82,83] – in policy development, personnel training, and infrastructure modernization. In particular, the development of a digital currency (electronic som) is an example of the transfer of innovations through cooperation with international financial institutions.

Regarding the security of the digital environment, Bulgaria has a systematic approach, enshrined in the digital strategy, based on compliance with EU standards in the field of data protection (in particular, GDPR), electronic identification, digital signatures, and cybersecurity. However, gaps remain, particularly in regional infrastructure coverage and digital competencies of civil servants. In Kyrgyzstan, digital security is evolving: biometric voter identification systems are being introduced, legislative changes are being made in the areas of fintech, identification, and digital currency. The institutional framework is still being formed, which makes it difficult to ensure comprehensive risk management (Table 2).

78 Y. PATASHKOVA, S. NIYAZBEKOVA, S. KERIMKHULLE, M. SERIKOVA, and M. TROYANSKAYA, Dynamics of Bitcoin trading on the Binance cryptocurrency exchange. *Economic Annals-XXI*, 187(1–2), 2021, 177–188. https://doi.org/10.21003/EA.V187-17.

79 The Digital Economy and Society Index (DESI), 2025. https://digital-strategy.ec.europa.eu/en/policies/desi.

80 Organisation for Economic Co-operation and Development, How we work, 2025. https://www.oecd.org/en/about/how-we-work.html.

81 Bulgaria 2025 Digital Decade Country Report, 2025. https://digital-strategy.ec.europa.eu/en/factpages/bulgaria-2025-digital-decade-country-report.

82 United Nations Development Programme, Annual report 2024, 2025a. https://www.undp.org/sites/g/files/zskgke326/files/2025-04/otchet_dlya_pechati.pdf.

83 United Nations Development Programme, UNDP Kyrgyzstan Annual Report 2024, 2025b. https://www.undp.org/kyrgyzstan/publications/undp-kyrgyzstan-annual-report-2024.

Table 2. Comparative approaches of Bulgaria and Kyrgyzstan to digital public administration.

Aspect	Bulgaria	Kyrgyzstan
Institutional maturity	Longstanding, EU-aligned, multiple agencies	Emerging, centralized ministry-led
Digital platforms	Established interoperability frameworks and portals	Unified platforms under rapid development
International standards	Strong EU and OECD engagement	Partnership-driven with UN and development partners
Regulatory framework	Comprehensive legal basis for e-services, privacy	Developing laws including digital currency
Digital security approach	Systemic, aligned with EU standards but with capacity gaps	Growing focus on secure ID and cybersecurity
Digital skills and inclusion	Recognized gaps in skills and rural infrastructure	Emphasis on connectivity and digital literacy efforts

[Source: compiled by the authors based on [84,85,86]]

Thus, both countries demonstrate a focus on the digital transformation of public administration, but Bulgaria relies on deep institutional integration into European structures, while Kyrgyzstan is building its own digital model in cooperation with international donors. Differences in approaches to security, institutional maturity, and regulatory regulation indicate different levels of digital readiness, but the common goal remains the creation of transparent, efficient, and inclusive public services[87,88]. This study opened up the applied dimension of digital transformation, focusing on administrative strategies in Bulgaria and Kyrgyzstan, in particular, the creation of unified platforms, institutional governance and international cooperation. This contrasted sharply with the work of Morató and Soro[89], which conceptualized digital policy in the cultural sphere in Spain, emphasizing the interaction between the central and

84 Bulgaria 2025 Digital Decade Country Report, 2025. https://digital-strategy.ec.europa.eu/en/factpages/bulgaria-2025-digital-decade-country-report.

85 United Nations Development Programme, Annual report 2024, 2025a. https://www.undp.org/sites/g/files/zskgke326/files/2025-04/otchet_dlya_pechati.pdf.

86 United Nations Development Programme, UNDP Kyrgyzstan Annual Report 2024, 2025b. https://www.undp.org/kyrgyzstan/publications/undp-kyrgyzstan-annual-report-2024.

87 O. KOLODIZIEV, M. KRUPKA, N. SHULGA, M. KULCHYTSKYY, and O. LOZYNSKA, The level of digital transformation affecting the competitiveness of banks. *Banks and Bank Systems*, 16(1), 2021, 81–91. https://doi.org/10.21511/bbs.16(1).2021.08.

88 V. KHARCHENKO, Y. PONOCHOVNYI, A.-S.M. QAHTAN, and A. BOYARCHUK, Security and availability models for smart building automation systems. *International Journal of Computing*, 16(4), 2017, 194–202.

89 A.R. MORATÓ, and G.G. SORO, Digital cultural policy in Spain: The game of emulation. In: O.M. Hylland, J. Primorac (Eds.), *Digital Transformation and Cultural Policies in Europe*. London: Routledge, 2023, 64-85. https://doi.org/10.4324/9781003334576-5.

regional levels and the support of creative industries. Both studies recognized the important role of the state in shaping the digital environment, but while in Spain the emphasis was on evolutionary coordination of actions, in Bulgaria and Kyrgyzstan – on centralized administrative models. In the work of Del-Real and Díaz-Fernández[90], the focus was shifted to the local level: the digital maturity of Spanish municipalities was investigated, in particular the impact of managerial competencies and internal culture on the pace of digitalization. This study, by contrast, examined state digital policy in a broader – national – context. They were united by a common thesis about the key role of the state in digital transformations, although the level of analysis and objects of the study differed significantly.

The approach of Mishra et al.[91] was conceptually different: the authors focused on the social consequences of digital transformation in countries of the Global South, analysing transparency, inclusion and risks of inequality. They critically examined the dangers of centralization of power and the digital divide. This study was more interested in technical and organizational tools within the framework of a national strategy. Battisti[92] raised the issues of digital sovereignty, transparency and accountability, emphasizing the risks for democracy in conditions of technological control. In contrast, this study paid attention to specific administrative solutions – e-government, coordination between agencies and technical infrastructure. Although both approaches recognized the importance of digitalization for governance, one explored idea, the other explored practical implementation mechanisms. An interesting contrast was also observed in comparison with the work of Fratini et al.[93]: there the emphasis was

---

90 C. DEL-REAL, and A.M. DÍAZ-FERNÁNDEZ, Understanding the plural landscape of cybersecurity governance in Spain: A matter of capital exchange. *International Cybersecurity Law Review*, 3, 2022, 313-343. https://doi.org/10.1365/s43439-022-00069-4.

91 A. MISHRA, Y.I. ALZOUBI, M.J. ANWAR, and A.Q. GILL, Attributes impacting cybersecurity policy development: An evidence from seven nations. *Computers & Security*, 120, 2022, 102820. https://doi.org/10.1016/j.cose.2022.102820.

92 D. BATTISTI, The digital transformation of Italy's public sector: Government cannot be left behind! *JeDEM – eJournal of eDemocracy and Open Government*, 12(1), 2020, 25-39. https://doi.org/10.29379/jedem.v12i1.591.

93 S. FRATINI, E. HINE, C. NOVELLI, H. ROBERTS, and L. FLORIDI, Digital sovereignty: A descriptive analysis and a critical evaluation of existing models. *Digital Society,* 3(3), 2024. https://doi.org/10.2139/ssrn.4816020.

placed on local digitalization initiatives in Italian communities, with attention to digital competence and population involvement. Instead, this study moved in the opposite direction – from nationwide strategies to centralized platforms, demonstrating the macro-level implementation of digital policy. They were united by the idea of digital inclusion, but the scale and type of institutional action differed.

The work of Falkner et al.[94] raised the issue of the normative balance between national and European legal systems, considering digital transformation in the context of political and legal mechanisms. In this context, this study looked like its exemplary addition, where legal conflicts gave way to managerial practice. That is, the difference was not in the importance of the topic, but in the depth of its consideration: regulatory discourse versus administrative implementation. In the work of Pierucci[95], digital sovereignty was interpreted through the prism of European influence on AI regulation, which allowed the author to consider the state as a subject of strategic autonomy in the global digital agenda. This study did not go beyond the applied dimension: it was about institutional coordination, the development of state platforms and the technical basis of the digital state. The common thesis was the need for state participation in digitalization, but each text represented a different depth and optics of understanding the problem.

Thus, the study of digital policies in Bulgaria and Kyrgyzstan demonstrated different models of public governance of digital transformation, focused on centralized administration, creation of unified electronic platforms and attraction of international assistance. Despite differences in institutional maturity, both countries confirmed the strategic importance of digitalization as a factor in modernizing administrative processes and increasing transparency. Bulgaria relies on regulatory integration into the European framework, while Kyrgyzstan is shaping its own model through partnerships with international organizations. What remains common is the desire to provide efficient, secure and inclusive electronic

---

94 G. FALKNER, S. HEIDEBRECHT, A. OBENDIEK, and T. SEID, Digital sovereignty – Rhetoric and reality. *Journal of European Public Policy*, 31(8), 2024, 2099-2120. https://doi.org/10.1080/13501763.2024.2358984.

95 F. PIERUCCI, Sovereignty in the digital era: Rethinking territoriality and governance in cyberspace. *Digital Society*, 4, 2025, 27. https://doi.org/10.1007/s44206-025-00189-4.

services for citizens.

5. Prospects for harmonizing approaches to digital security in the international context

In the context of growing cyber threats, geopolitical turbulence and accelerated digitalization of state functions, harmonization of approaches to digital security at the international level is becoming not only desirable, but also a necessary condition for ensuring the effective functioning of state institutions. The prospects for such convergence are particularly relevant in the area of cooperation between the European Union and countries with economies in transition, in particular Kyrgyzstan, which, although they have limited resources, demonstrate a high level of institutional readiness for digital transformations. One of the key tools in this process is the transfer of experience and models of digital security management[96,97]. The European Union has developed an effective legal architecture in this area, which includes documents such as the Directive on Security of Network and Information Systems (NIS)2 Directive, the General Data Protection Regulation (GDPR) and National Cybersecurity Strategies, integrated into the pan-European DESI indicator system. This experience can be adapted by countries with economies in transition through the format of technical assistance, joint exercises, digital missions or knowledge platforms (for example, the OECD Digital Government Toolkit). Kyrgyzstan, which already cooperates with United Nations Development Programme[98] and the World Bank[99] in the digital sphere, has the potential to use European practices in the field of cyber incident response, the creation of independent supervisory bodies, digital sovereignty and platform regulation.

---

96 E. DAHAN, I. AVIV, and M. KIPERBERG, Trust Domain Extensions Guest Fuzzing Framework for Security Vulnerability Detection. *Mathematics*, 13(11), 2025, 1879. https://doi.org/10.3390/math13111879.

97 M.M. PETROVA, O. SUSHCHENKO, I. TRUNINA, and N. DEKHTYAR, Big data tools in processing information from open sources. *2018 IEEE 1st International Conference on System Analysis and Intelligent Computing (SAIC 2018)*, 2018, article number 8516800. https://doi.org/10.1109/SAIC.2018.8516800.

98 United Nations Development Programme, UNDP Kyrgyzstan Annual Report 2024, 2025b. https://www.undp.org/kyrgyzstan/publications/undp-kyrgyzstan-annual-report-2024.

99 WORLD BANK, World Bank in the Kyrgyz Republic, 2025. https://www.worldbank.org/en/country/kyrgyzrepublic.

The next direction is the improvement of the regulatory framework and administrative procedures, which involves not only the translation and formal implementation borrowing of legislative acts, but also a deep adaptation of norms to national realities. For example, EU countries prioritize the coding of digital processes in legislation, in particular through digital pilots – tests of the operation of new regulations before their full implementation[100,101]. Such a methodology can be transferred to Bulgaria and Kyrgyzstan as a tool to reduce the risks of unsuccessful implementation. Also promising is the introduction of regulatory sandboxes – zones where innovative technologies, including AI and blockchain, are tested under relaxed conditions under the supervision of regulators[102]. This approach will create a balance between innovation and security, especially in the healthcare, social protection and digital justice sectors. Special attention should be paid to areas of strengthening the digital resilience of state institutions, which should be based on a multi-level approach. The first level is the human resources and educational base[103]. Currently, most of the countries participating in the study have a shortage of cybersecurity specialists in the public sector. France is solving this by implementing specialized programs in École nationale d'administration (ENA) and cooperating with technical universities; Poland – through national competitions and grants for training civil servants in digital technologies. Kyrgyzstan is already implementing pilot educational modules in partnership with international organizations, but needs to institutionalize digital education at the level of the National Civil Service

100 A. TROFYMCHUK, A. STENIN, and I. DROZDOVYCH, Modeling of information systems of service-oriented architecture. *2019 International Conference on Information and Telecommunication Technologies and Radio Electronics (UkrMiCo 2019)*, 2019, article number 9165416. https://doi.org/10.1109/UkrMiCo47782.2019.9165416.

101 K. KAVALDZHIEVA, The Impact of Digitalization on the Measurement of Value in the Production and Operation of Industrial Products. *2019 International Conference on High Technology for Sustainable Development (HiTech 2019)*, 2019, article number 9128260. https://doi.org/10.1109/HiTech48507.2019.9128260.

102 K.A. BISENOVNA, S.A. ASHATULY, L.Z. BEIBUTOVNA, K.S. YESILBAYULY, A.A. ZAGIEVNA, M.Z. GALYMBEKOVNA, and O.B. ORALKHANULY, Improving the efficiency of food supplies for a trading company based on an artificial neural network. *International Journal of Electrical and Computer Engineering*, 14(4), 2024, 4407–4417. https://doi.org/10.11591/ijece.v14i4.pp4407-4417.

103 E. GINTERS, M. MEZITIS, and D. AIZSTRAUTA, Sustainability simulation and assessment of bicycle network design and maintenance environment. *2018 International Conference on Intelligent and Innovative Computing Applications (ICONIC 2018)*, 2018, article number 8601225. https://doi.org/10.1109/ICONIC.2018.8601225.

Agency.

The second level is infrastructural resilience, which involves diversifying data exchange channels, backing up critical information, and the autonomy of state digital systems[104]. In this context, Bulgaria has already implemented a state data centre project with backup capacity in Plovdiv, while Kyrgyzstan is developing a similar project with the support of Chinese investors. The third level is procedural and scenario-based readiness, which includes regular cyber exercises, updating incident response algorithms, and creating interagency response teams (CERT or CSIRT). International cooperation in these aspects can consist of joint exercises, mutual access to early warning mechanisms, and the exchange of threat indicators. An additional aspect of harmonizing approaches to digital security is the mutual value of sharing experiences between the EU and transition economies, in particular the possibility of borrowing solutions not only in the "west-east" direction, but also in the reverse direction[105]. European Union countries, in particular France and Bulgaria, can use some innovative developments from countries with more flexible administrative structures, such as Kyrgyzstan, to test non-standard digital solutions in the context of less regulation and faster decision-making cycles. For example, the introduction of a digital currency (electronic som) in Kyrgyzstan demonstrates a bold approach to fintech regulation, which can become a test bed for more cautious European countries in innovations.

In addition, Kyrgyzstan is actively integrating mobile applications as a platform for accessing government services even in remote areas with unstable internet, which could be useful for Bulgaria or Poland in their efforts to digital inclusion in rural areas. Poland, in turn, can use the example of Bulgaria in the field of centralized storage of state data with a backup infrastructure, which is especially relevant in the context of increasing cyberattacks on critical facilities. On the other hand, countries with economies in transition, in particular Kyrgyzstan, can

104 V. KHODA, N. LESHCHUK, A. TOPALOV, S. ROBOTKO, O. KLYMENKO, and S. NEKRASOV, Computerized Lathe Control System based on Internet of Things Technology. *Proceedings – International Conference on Advanced Computer Information Technologies (ACIT)*, 2024, 674–677. https://doi.org/10.1109/ACIT62333.2024.10712548.

105 E. SHAHINI and E. SHAHINI, The Economic and Political Legacy of Trump's First Term: Implications for the Second Presidency. *Politics and Policy*, 53(5), 2025, e70066. https://doi.org/10.1111/polp.70066.

borrow a lot from EU countries in areas such as systemic regulation of personal data protection (for example, GDPR), the creation of independent data protection authorities (such as CNIL in France), the introduction of single indicators for measuring digital transformation (DESI) and the unification of procedures for public electronic services. Such elements of the European model provide not only legal certainty, but also increase citizens' trust in the digital state.

In the future, it is the bilateral exchange of tools, institutional solutions and technological models that will ensure the sustainable development of digital security. The European Union, with its regulatory-rich but sometimes cumbersome model, can learn flexibility, local adaptability, and rapid response from smaller and more dynamic governance systems, while non-EU states can institutionalize their own progress based on proven European standards[106,107]. Such a symmetrical exchange of approaches will contribute to the formation of an effective global digital security ecosystem. Thus, harmonization of approaches to digital security has not a declarative, but an applied potential, the implementation of which is possible through flexible copying and adaptation of best practices, gradual updating of regulatory architecture and institutional modernization. Synergy between EU countries and countries with economies in transition can not only strengthen national systems, but also contribute to the formation of a single Eurasian digital space with a guaranteed level of security, trust and inclusiveness.

The study by Metin et al.[108] and this study shared a focus on the role of the state in ensuring cybersecurity. Both emphasized the need for regulatory regulation, institutional support, and technological protection of the digital environment. Metin et al. proposed a universal model for Small and Medium-sized Enterprises (SMEs) and criticized the current standards for being too complex. This study, instead, focused on the analysis of specific government policies in France,

106 S. ABBASOVA, V. İSMAYILOV, and N. TRUSOVA, Problems of financing the state budget deficit. *Scientific Bulletin of Mukachevo State University. Series Economics*, 10(4), 2023, 9–19. https://doi.org/10.52566/msu-econ4.2023.09.

107 A. SHAFA, Historical aspects of economic thought in Azerbaijan. *Voprosy Istorii*, 8(2), 2021, 148–155. https://doi.org/10.31166/VoprosyIstorii202108Statyi41.

108 B. METIN, F.G. OZHAN, and M. WYNN, Digitalisation and cybersecurity: Towards an operational framework. *Electronics*, 13(21), 2024, 4226. https://doi.org/10.3390/electronics13214226.

Poland, Bulgaria, and Kyrgyzstan. While Metin et al. focused on a bottom-up adaptive approach, this study demonstrated examples of centralized government management. The two works complemented each other conceptually and practically. Continuing the topic of strategic approaches to digital threats, it is worth mentioning the study by Radanliev[109], which had a similar vision of the role of the state in strengthening cyber defence. Both works emphasized the need for state intervention, partnership with business, and strengthening trust in digital solutions. However, while this study was based on an analysis of the current legal environment and mechanisms for implementing policies, Radanliev emphasized a proactive approach, including the concept of "resilience-by-design" and management in complex conditions

Further, considering the work of Khanna[110], it was also possible to trace a common understanding of digital security as a complex problem that required not only technical but also regulatory solutions. Both studies emphasized the importance of transparency, trust, and effective risk management. However, while Khanna focused on global challenges – dependence on foreign technologies and supply chain vulnerabilities – this study analysed domestic institutional responses and paths to integrating European norms. Again, both perspectives complemented each other, revealing both external and internal dimensions of digital security. In this context, the work of Rhogust[111] was particularly noteworthy, considering digital security at the corporate level. The author emphasized the importance of implementing International Organization for Standardization (ISO) standards, developing a cyber culture, and adapting security to internal company processes. This was markedly different from the state focus of this study, which focused on regulatory harmonization, institutional coordination, and administrative resilience. At the same time, these approaches were not contradictory – on the contrary, they demonstrated the need for synergy between state regulation

109 P. RADANLIEV, Cyber diplomacy: Defining the opportunities for cybersecurity and risks from artificial intelligence, IoT, blockchains, and quantum computing. *Journal of Cyber Security Technology*, 9(1), 2025, 28-78. https://doi.org/10.1080/23742917.2024.2312671.

110 A. KHANNA, Future trends in digital security. In: A. Khanna (Ed.), *Securing an Enterprise: Maximizing Digital Experiences through Enhanced Security Measures*. Berkeley: Apress, 2025, 481-504. https://doi.org/10.1007/979-8-8688-1029-9_22.

111 M. RHOGUST, Legal framework for cybersecurity in the digital economy: Challenges and prospects for Indonesia. *Journal of Law, Social Science and Humanities*, 1(2), 2024, 166-180.

and private initiative.

A study by Adeyeri and Abroshan[112] broadened the discussion by highlighting the importance of digital security in developing country contexts. The authors focused on the issues of digital inequality, institutional weakness and the need for regional cooperation. In contrast, the study on France, Poland, Bulgaria and Kyrgyzstan focused on the modernization of public administration and integration with international standards. This contrast allowed for a better understanding of how digital security varied depending on the institutional capacity of the countries. Equally important was the comparison with the work of Chiara[113], which introduced an ethical and legal dimension to digital security. The author argued for the need to balance data protection and human rights, emphasizing the risks of excessive control. In this study, by contrast, the priority was to increase the resilience of state institutions through increased control and harmonization of norms. As a result, both approaches offered different aspects of the same problem – one from a human rights perspective, the other from a public administration perspective.

Of particular note was the work of Parambil et al.[114], which highlighted the importance of national strategies, coordination between institutions and adaptation to emerging threats in the digital environment. Although the main focus was on the education sector and countries with limited resources, the study demonstrated that cyber resilience required common standards and cooperation across all sectors. In comparison, the four-country study focused on institutional responsibility and regulatory unification within the European policy framework. The work of Almeida[115] added an educational and strategic component to the discussion. The author paid attention to the development of digital culture,

112 A. ADEYERI, and H. ABROSHAN, Geopolitical ramifications of cybersecurity threats: State responses and international cooperations in the digital warfare era. *Information*, 15(11), 2024, 682. https://doi.org/10.3390/info15110682.

113 P.G. CHIARA, Towards a right to cybersecurity in EU law? The challenges ahead. *Computer Law & Security Review*, 53, 2024, 105961. https://doi.org/10.1016/j.clsr.2024.105961.

114 M.M.A. PARAMBIL, J. RUSTAMOV, S.G. AHMED, Z. RUSTAMOV, A.I. AWAD, N. ZAKI, and F. ALNAJJAR, Integrating AI-based and conventional cybersecurity measures into online higher education settings: Challenges, opportunities, and prospects. *Computers and Education: Artificial Intelligence*, 7, 2024, 100327. https://doi.org/10.1016/j.caeai.2024.100327.

115 F. ALMEIDA, Comparative analysis of EU-based cybersecurity skills frameworks. *Computers & Security*, 151, 2025, 104329. https://doi.org/10.1016/j.cose.2025.104329.

leadership and the integration of cybersecurity into governance systems, particularly in the educational environment. This resonated with the topic of this study, although within a different context. While Almeida called for the transformation of governance practices through education, in this study the main goal was to strengthen the regulatory architecture of states. In conclusion, the work of Zhang et al.[116] brought a global perspective to the relationship between digital trade and security. The authors considered digital security through the prism of geopolitics, interstate rivalry, and artificial intelligence. This differed from the administrative-legal approach of this study, which aimed to adapt national systems to European norms. However, both approaches confirmed that digital security was no longer an isolated technical field – it was becoming a key component of state and international policy.

As a result, harmonization of approaches to digital security turned out to be not only theoretically desirable, but also practically necessary to increase the efficiency of state institutions in the context of digital transformation. The study showed that the exchange of experience between EU countries and countries with economies in transition, in particular Kyrgyzstan, has significant potential for the formation of a resilient digital infrastructure. Analysis of the examples of France, Poland, Bulgaria and Kyrgyzstan demonstrated that symmetric borrowing of solutions – from regulatory adaptation to the implementation of innovative tools – contributes to increasing cyber resilience at the interstate level.

6. Conclusion

In conclusion, the study highlights the critical importance of international cooperation in the field of digital security, particularly between the EU and transitioning economies. It suggests that EU countries could benefit from the more flexible innovations observed in countries like Kyrgyzstan, while also sharing their regulatory models. Future research could focus on assessing the impact of digital security policies in these countries, particularly through case studies on the implementation of the proposed strategies.

---

116 C. ZHANG, X. CHEN, J. YANG, and X. GAO, Nexus between digital trade and security: Geopolitical implications for global economy in the digital age. *Asian Review of Political Economy*, 3, 2024, 10. https://doi.org/10.1007/s44216-024-00032-6.

A comparative analysis of four countries – France, Poland, Bulgaria and Kyrgyzstan – revealed different models of public policy in the field of digital security, depending on the level of institutional maturity, technical infrastructure, integration into international regulatory systems and administrative approaches to digital transformation. France demonstrated a comprehensive model based on a combination of strict regulation, ethical standards and technological sovereignty. Particular attention was paid to the implementation of European legislation (in particular GDPR, NIS2, AI Act), the development of an institutional structure with separate supervisory authorities (CNIL, ANSSI, ARCOM, INESIA) and the harmonization of national acts with EU requirements. Poland is implementing a centralized approach based on a clear strategic framework, institutional coordination and innovative solutions in the field of cyber defence, including the creation of CSIRT teams, the transition to secure cloud technologies and the implementation of a long-term program "Cyber Shield" for infrastructure modernization.

Bulgaria, integrated into the European digital field, demonstrates consistency in the implementation of digitalization programs (Digital Bulgaria 2025), but faces the problems of low institutional coherence, fragmentation of projects and insufficient cyber resilience. Kyrgyzstan, as a country with a transition economy, is building its own digital model, relying on international partnerships (UNDP, World Bank), a centralized administrative system, the development of mobile services and the implementation of innovative solutions, such as a digital currency or the "Tunduk" platform. Despite their differences, all four countries recognize the strategic importance of digital transformation and strive to create secure, efficient and inclusive public digital services. One of the key results of the study was the identification of the potential for harmonizing approaches to digital security between the European Union and countries with economies in transition. The prospects for bilateral exchange of models, institutional solutions and technological tools were determined: from the transfer of European standards on personal data, cyber incidents and administrative liability to the adaptation of more flexible and innovative solutions tested in Kyrgyzstan. A limitation of this study was that it was based solely on the analysis of regulatory and institutional mechanisms without including empirical data on the effectiveness of policy implementation on the ground. Future research could further investigate the implementation gaps and institutional learning processes between countries through qualitative case studies or longitudinal monitoring.

Iryna Kolodii
Acting Associate Professor
Department of Management and Territorial Development named after Yevhen Khraplyvyi,
Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies of Lviv
ikolodii9@gmail.com

Andriy Kolodiy
Associate Professor
Department of Finance, Banking and Insurance,
Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies of Lviv
an.kolodiy@outlook.com

Yuriy Dubnevych
Associate Professor
Department of Management and Territorial Development named after Yevhen Khraplyvyi,
Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies of Lviv
y-dubnevych@hotmail.com

Halyna Skhidnytska
Associate Professor
Department of Finance, Banking and Insurance,
Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies of Lviv
h_skhidnytska@outlook.com

Volodymyr Chechel
Postgraduate Student
Department of Management and Territorial Development named after Yevhen Khraplyvyi,
Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies of Lviv
vochechel@hotmail.com

Digital transformation of financial management: innovative technologies and outsourcing in the development of territorial communities

Abstract

The purpose of the study is to assess the impact of the level of digital maturity and the application of outsourcing practices on the effectiveness of financial management in territorial communities of the Lviv region.

Methodically, the study is based on typological analysis, comparative statistics, Student's t-criteria, and Mann-Whitney U-criteria.

As part of the analysis, typologised communities were identified: 21% had a comprehensive digital architecture, 48% – a fragmented one, and 31% – a basic level of digital presence. In digitally mature communities, the average time for approving financial decisions was 1.9 days (vs. 6.5 days), documentation processing – 2.4 days (vs. 7.1), and the share of errors in financial documents – 3.2% (vs. 11.4%). Integrated accounting platforms provided forecast accuracy of 5.7%, while basic accounting platforms provided forecast accuracy of 13.1%. In communities with digital control, the frequency of exceeding budget limits did not exceed 4.1%, and the share of erroneous transactions – 2.8%. Outsourcing was applied in 38% of communities and was accompanied by a 27% reduction in costs, errors – up to 3.1%, delays in reporting – up to 1.1 days. In 24% of communities, analytical functions were transferred to external performers. Based on the results, a conceptual model for integrating digital technologies and outsourcing with a network of shared service centres is proposed.

Practical importance lies in the possibility of applying the results to form digital development strategies, optimise costs, and improve the efficiency of municipal administration in the context of decentralisation.

The obtained conclusions can be used by heads of territorial communities, specialists of local self-government bodies, regional divisions of the Ministry of Digital Development, and specialised consulting structures in the development of digital transformation programs, selection of outsourcing support models, implementation of electronic budgeting platforms, and in the development of intermunicipal initiatives to create joint service centres.

KEYWORDS: Budget planning – Public finance – Decentralisation – Analytical modelling – Standardisation of reporting – Financial technologies

1. Introduction

The growing complexity of financial management in the context of decentralisation has led to the need to expand the institutional capabilities of territorial communities through the introduction of digital tools. The intensification of information flows, the growing need for accurate budget planning and operational control, and the requirements for transparency of management decisions have actualised the transition to digital public financial management. The fragmented use of digital platforms, the lack of uniform accounting standards, low integration of information systems, and limited human and technical resources remained widespread, which hindered the implementation of the strategic goals of communities. The study focused on the need to develop a comprehensive management model that combines digital services with outsourcing mechanisms to ensure the sustainability, efficiency, and adaptability of budget processes. Outsourcing of financial and technical functions was considered as a tool for improving functional capacity without increasing the internal burden on management structures.

Publications devoted to digital transformation mainly analysed general economic or sectoral changes, which led to the presence of aspects that were not covered, related to the functioning of digital solutions in the field of financial management at the level of territorial communities. Thus, in the study by Badiaiev[1] and Kolodii et al.[2], the impact of digital transformation on the financial management of enterprises is analysed in the context of crisis changes, with a focus on crisis response tools. However, the specifics of digitalisation in the public sector, in particular, in the activities of local self-government bodies, were not considered, and the role of outsourcing mechanisms in the budget process was ignored.

1 O. BADIAIEV, Digital transformation of financial management in an enterprise during a crisis. *Modeling the Development of the Economic Systems*, 2, 2024, 253-258. https://doi.org/10.31891/mdes/2024-12-33

2 I. KOLODII, R. SKUPSKYI, L. DOMBROVSKA, A. KOLODIY, and V. HALANETS, Mechanism of anti-crisis management in agricultural enterprises: Characteristics and features of the implementation. *Review of Economics and Finance*, 21(1), 2023, 2460-2466. https://doi.org/10.55365/1923.x2023.21.261

The analysis of the scientific literature shows the dominance of approaches in which digital transformation is considered mainly in connection with the development of the private sector, marketing strategies, or macroeconomic shifts. Therewith, the specifics of the functioning of digital solutions in the public sector of local self-government often remain out of the scope of the studies. For example, Krymska et al.[3] paid closer attention to digital communication channels and consumer behaviour analytics, disregarding the use of digital services in public financial management systems. In the paper of Tyshchenko[4], digital technologies were positioned as a driver of macroeconomic development, but their impact on the institutional structure of the budget process in communities was not explored.

In the field of strategic planning for the development of territorial communities, the emphasis was placed on resource potential and general approaches to the development of long-term programmes, which is highlighted by Pastuh[5]. Thereby, the issues of digital administration, automation of financial-budgetary procedures and integration of outsourcing mechanisms into the local government system were overlooked. Tools for digital support of strategic control and evaluation of the effectiveness of management decisions were also not considered.

However, a number of modern international studies show a growing interest in the topic of digital transformation in connection with the development of outsourcing mechanisms to support management processes. In this context, Guo et al.[6] reviewed the relationship between internal practices of research and development (R&D practices), external technological support, and parameters of sustainable digital transformation, concentrating on the corporate level. In the stu-

3 A.O. KRYMSKA, U.O. BALYK, and I.O. KLIMOVA, Digital transformation in the field of marketing: New approaches and opportunities. *Academic Visions*, 26, 2023. http://dx.doi.org/10.5281/zenodo.10374255

4 D. TYSHCHENKO, Digital transformation as economic development driver. *Digital Economy and Economic Security*, 4(4), 2023, 38-45. https://doi.org/10.32782/dees.4-7

5 K. PASTUH, Strategic development planning of territorial communities. *Scientific Herald: Public Administration*, 1(7), 2021, 195-215. https://doi.org/10.32689/2618-0065-2021-1(7)-195-215

6 C. GUO, Y. ZHAO, Z. MIAO, W. LI, and H. CHEN, Indigenous R&D, outsourcing technology, and sustainable digital transformation. *Journal of the Knowledge Economy*, 15(4), 2024, 20745-20777. https://doi.org/10.1007/s13132-024-01983-0

dy by Messaou and Barakate[7], digital modernisation of the budget is viewed through the prism of the introduction of an electronic visa procedure for local budgets, which is an important example of technical transformation, but does not cover the organisational and functional level of interaction between communities and service contractors. In both cases, there is no systematic understanding of the role of digital platforms in the context of institutional management and strategic control in local self-government bodies.

Some papers have covered the phenomenon of digital transformation through the prism of institutional changes, but the financial aspects of management at the level of territorial communities have mostly remained out of focus. For instance, Kim et al.[8] present a case study of digitalisation of the banking sector in South Korea and other countries, without an analysis of the implementation of digital solutions in public administration at the local level. Komninos et al.[9] demonstrate the functioning of urban digital platforms within various industry ecosystems, while the mechanisms of budget administration and the institutional logic of attracting external service structures were not the subject of analysis.

A study by Qureshi[10] focuses on the aspects of digital inclusion and self-government development in border and socially vulnerable regions, disregarding the automated financial planning, monitoring, and analytics tools as factors for strengthening the institutional capacity of communities. A study by Tan[11] displays the political economy of digital transformation processes in China, parti-

7 I. MESSAOU, and H. BARAKATE, The contributions of digital transformation to local finance management: The example of the electronic visa procedure for territorial collectivities budgets. In: Y. Farhaoui (Ed.), *Artificial Intelligence, Big Data, IOT and Block Chain in Healthcare: From Concepts to Applications*. Cham: Springer, 2024, 354-370. https://doi.org/10.1007/978-3-031-65014-7_32

8 E. KIM, M. KIM, and Y. KYUNG, A case study of digital transformation: Focusing on the financial sector in South Korea and overseas. *Asia Pacific Journal of Information Systems*, 32(3), 2022, 537-563. https://doi.org/10.14329/apjis.2022.32.3.537

9 N. KOMNINOS, C. KAKDERI, A. COLLADO, I. PAPADAKI, and A. PANORI, Digital transformation of city ecosystems: Platforms shaping engagement and externalities across vertical markets. In: L. Mora, M. Deakin, X. Zhang, M. Batty, M. de Jong, P. Santi, F.P. Appio (Eds.), *Sustainable Smart City Transitions: Theoretical Foundations, Sociotechnical Assemblage and Governance Mechanisms*. London: Routledge, 2022, 91-112. https://doi.org/10.4324/9781003205722

10 S. QURESHI, Digital transformation at the margins: A battle for the soul of self-sovereignty. *Information Technology for Development*, 28(2), 2022, 215-229. https://doi.org/10.1080/02681102.2022.2062291

cularly in the context of choosing strategic partners, while local management transformations related to fiscal policy and digital administration are not investigated. The presence of such restrictions indicates the lack of a holistic scientific vision for the use of digital solutions in the field of municipal financial management and their combination with outsourcing mechanisms, which justifies the need for a systematic examination of these aspects.

The study aimed to clarify how the level of digital maturity of management processes and the introduction of outsourcing mechanisms affect the effectiveness of financial management in territorial communities of the Lviv region in the context of institutional transformations related to the implementation of the decentralisation reform. The following tasks were set to achieve this goal: conduct a typologisation of communities by the level of digital maturity; assess the effectiveness of using digital platforms in budget planning and control; analyse the practice of using outsourcing models in the field of financial and accounting support and management of technical processes; develop an integrated model of digital outsourcing interaction as a tool for strategic development of communities.

2. Methodology

The study was analytical and applied in nature and took place during 2019-2024. The spatial boundaries were territorial communities of Ukraine, with a focus on the communities of the Lviv region as a region with active processes of digitalisation and organisational renewal within the framework of the decentralisation reform. The study was based on open sources, including the Ministry of Finance of Ukraine[12], the State Statistics Service of Ukraine[13], and the National Agency of Ukraine on Civil Service[14]. Data from the Open Budget system[15]

11 J. TAN, Buying smart: Unpacking the political economy in the partner selection of China's digital transformation. *Chinese Political Science Review*, 2024. https://doi.org/10.1007/s41111-024-00262-2

12 Ministry of Finance of Ukraine. Budgetary policy, 2025. https://mof.gov.ua/uk/budget-policy

13 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

14 National Agency of Ukraine on Civil Service. Public finance, 2025. https://nads.gov.ua/publichni-finansi

15 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

and statistics from the Prozorro platform[16] were also used.

For in-depth analysis, communities of the Lviv region representing different levels of digital maturity were selected: Lviv, Drohobych, Chervonohrad, Stryi, Sokal, Zolochiv, Yavoriv, Sambir, Kamianka-Buzka, Peremyshliany, Horodok, Mykolaiv, Zhovkva, and Radekhiv. The selection was based on the criteria of diversity of digital practices, availability of reporting information, participation in digitalisation projects, and territorial and socio-economic distribution. The inclusion of communities with different administrative capacities allowed us to identify patterns that are characteristic of both urbanised and rural municipalities.

Within the framework of the study, methods of content analysis of the current regulatory support for digital transformation of Public Administration were used, in particular, the Law of Ukraine No. 2807-IX "On the National Information Program"[17] and the Law of Ukraine No. 2456-VI "On Budget Code of Ukraine"[18]. The relevant government resolutions on the organisation of electronic interaction of state electronic information resources and the implementation of public finance reform were also considered, including transparency in the management of public funds and the introduction of digital budget monitoring tools[19,20].

In the structure of the study, a block of retrospective analysis was identified, the purpose of which was to trace the stages of digital transformation of territorial communities of the Lviv region in 2019-2024. This approach allowed recording the dynamics of the transition between the levels of digital maturity, assessing the relationship between the intensity of information technology (IT) costs and the nature of implemented digital solutions, and identifying consistent

---

16 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

17 Law of Ukraine No. 2807-IX "On the National Informatization Program". 2022. https://zakon.rada.gov.ua/laws/show/2807-20#Text

18 Law of Ukraine No. 2456-VI "On Budget Code of Ukraine". 2010. https://zakon.rada.gov.ua/laws/show/2456-17

19 Resolution of the Cabinet of Ministers of Ukraine No. 357 "On Some Issues of Organizing Electronic Interaction of State Electronic Information Resources". 2018. https://www.kmu.gov.ua/npas/deyaki-pitannya-organizaciyi-elektronnoyi-vzayemodiyi-derzhavnih-elektronnih-informacijnih-resursiv

20 Cabinet of Ministers of Ukraine. Reform of public finance management, 2025. https://www.kmu.gov.ua/reformi/efektivne-vryaduvannya/reforma-derzhavnih-finansiv

changes in administrative and managerial approaches. The inclusion of the retrospective component ensured the integration of time parameters into the overall analytical design of the study, identifying causal relationships in the processes of digitalisation of municipal administration.

Analytical data processing included a comparative analysis of the level of community digitalisation, the dynamics of digital service costs, the use of outsourcing, and related effects on the budget process. Statistical methods included the use of the Student's t-test at a significance level of $p \leq 0.05$ to check hypotheses about differences between community groups. In case of violation of the assumption of normality of the distribution, the Mann-Whitney U-test and the Fisher criterion were used. The effectiveness of digital accounting platforms, automated document management systems, Big Data analytics modules, and digital financial monitoring solutions was evaluated separately. Personnel costs, error rate, documentation processing time, response to changes in budget parameters, and the level of integration of external services into the internal digital contours of communities were evaluated.

Considerable attention was paid to the examination of the implementation of outsourcing models, in particular, in the areas of accounting support, IT infrastructure administration (information technology infrastructure), analytical consulting, and waste management. There was a reduction in costs and an increase in operational efficiency when transferring functions to external performers. The analysis also considered examples of outsourcing integration into the financial accounting system of community enterprises through digital platforms with environmental and logistics monitoring.

The interpretation of the results obtained was based on a multidimensional comparison of the structural characteristics of the digital infrastructure, indicators of budget performance, and practices for using external resources. Typologisation of communities by the level of digital maturity allowed identifying progressive management models that demonstrated the highest indicators of efficiency, adaptability, and strategic balance between resources and functions. Based on empirical conclusions, the author's model of digital outsourcing integration was developed as a tool for improving the effectiveness of financial activities of local self-government bodies.

3. Typology of levels of digital maturity of financial management systems on the example of analysis of 14 territorial communities of the Lviv region

Systemic changes in the field of public finance that occur in the context of decentralisation are accompanied by an increase in the institutional burden on local self-government bodies. Increasing the scope of budget planning, control, and analysis functions requires a transition from fragmented use of digital tools to integrated solutions that can ensure the functional integrity of management processes. The growing complexity of financial transactions in communities, the expansion of data volumes, and the need to improve the accuracy of budget decisions have led to the urgency of developing structured models that allow assessing the level of digital maturity of management systems at the municipal level.

The intensity of digital transformation in territorial communities reveals major variability, which is explained by differences in technical support, human resources, local finance volumes, and organisational approaches to managerial decision-making[21]. As a result, asymmetric models are formed in which the digital infrastructure can either cover all key stages of the budget cycle or be reduced to an elementary level of automation of individual procedures. This unevenness creates potential gaps in the speed of response to changes, the reliability of reporting data, and resilience to human-related risks. The presence of these imbalances justifies the need to develop a typology of digital models that would reflect the real state of the financial and management infrastructure at the local level.

To this end, a structural grouping of territorial communities of the Lviv region was conducted, accounting for the three key criteria: the number of functional modules that ensure the performance of budget functions; the level of integration of digital components into a single information system; and the degree of application of artificial intelligence tools in analysis and forecasting processes. This approach allowed establishing both the availability of digital solutions and assessing their depth, functional completeness, and potential for automated management. Typical characteristics of each of the identified groups, proportion in the sample structure, and specific examples of communities are given in Table 1.

21 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

Table 1. Typology of communities by level of digital maturity and their characteristics

Community type	Characteristics of the digital infrastructure	Examples of tools used	Number of functional modules	Availability of AI analytics	Share of the total sample	Examples of communities
Integrated digital integration	Unified information system, full automation of accounting, planning, and control	*FinTech*-modules, artificial intelligence (AI)-scenarios, *Big Data*, electronic audit	6 or more (accounting, planning, monitoring, analysis, forecasting, audit)	Yes (using scenario models, automated forecasting)	21%	Lviv city, Zymnovodivska rural, Horodok city, Stryi city
Fragmentary digitalisation	Using separate digital solutions without cross-system integration	Accounting systems, document management, open budgets	2-5 (accounting, document management, open budget, etc.)	Limited (only in individual modules or during the testing phase)	48%	Boryslav city, Sambir city, Drohobych city, Truskavets city
Basic level of digital presence	Minimal use of digital technologies, no automation	Basic spreadsheets, manual accounting, offline reporting	1 or missing (manual accounting, spreadsheets)	None	31%	Slavske settlement, Dobrosyn-Maheriv rural, Borynia settlement, Pomoriany settlement

[Source: compiled by the authors based on [22,23,24,25,26]]

Table 1 demonstrates a clear differentiation of territorial communities of the Lviv region in terms of digital maturity, which is manifested in the depth of

22 Ministry of Finance of Ukraine. Budgetary policy, 2025. https://mof.gov.ua/uk/budget-policy

23 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

24National Agency of Ukraine on Civil Service. Public finance, 2025. https://nads.gov.ua/publichni-finansi

25 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

26 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

application of digital tools, the structure of information infrastructure, and the degree of automation of financial processes. Communities with integrated digital integration (21% of the sample) are characterised by the presence of a single information system with six or more functional modules, the use of FinTech solutions, artificial intelligence and Big Data analytics, which ensures a high level of accuracy, control, and efficiency of management decisions. In communities with fragmented digitalisation (48%), there is a partial introduction of digital tools without proper integration between modules, which limits the potential for effective financial control. The least effective is the category of communities with a basic level of digital presence (31%), where digitalisation is reduced to the use of elementary tables and manual accounting without automation or the use of intelligent systems, which indicates a critical need for technological strengthening of these municipalities.

The results of the analysis showed the variability of digital maturity depending on the availability of financial resources, organisational structure, and level of human resources (Figure 1). In communities with a developed digital infrastructure, modules for electronic reporting, revenue forecasting, cost analysis, and tools for budget modelling were used. However, in communities with partial digitalisation, separate modules were used without a single integration logic, which limited the effectiveness of financial analysis.

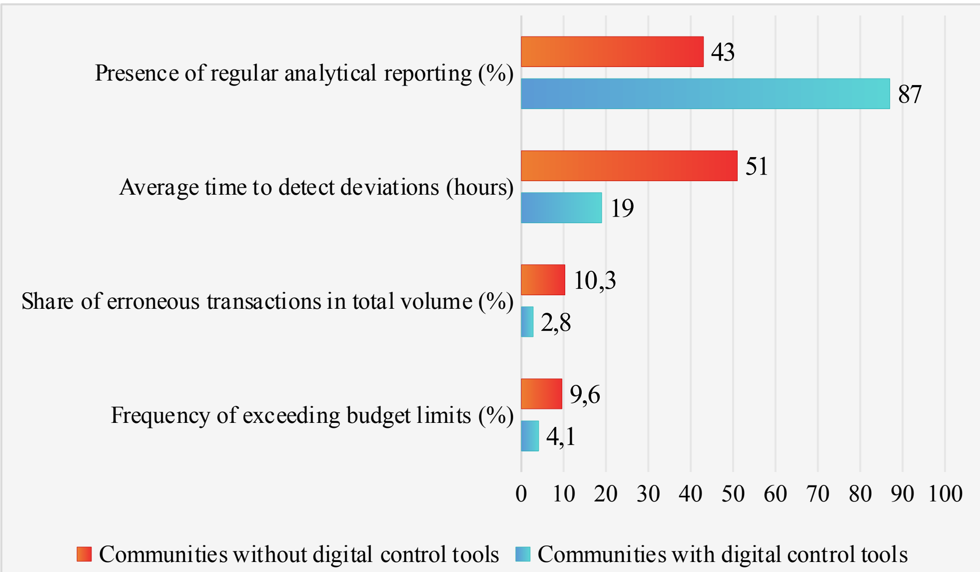


Figure 1. Comparative performance indicators of budget procedures in communities with different levels of digitalisation in 2024

[Source: compiled by the authors based on [27,28,29,30,31]]

Figure 1 illustrates the pronounced relationship between the level of digitalisation of management processes in territorial communities and the effectiveness of implementing budget procedures. Communities with a basic level of digital presence show the worst performance in all parameters: the highest share of errors in financial documents (11.4%), the longest average time for approving a financial decision (6.5 days), and the longest processing time for budget documents (7.1 days). In the context of fragmented digitalisation, these indicators are improving, although they remain average (6.8%, 4.7 days, and 5.3 days, respectively). The best results are achieved by communities with integrated digital integration: the error rate is only 3.2%, approval of a financial solution takes 1.9 days, and documentation processing – 2.4 days. This indicates a direct correlation between the depth of digitalisation and improved accuracy, speed, and overall efficiency of financial and administrative procedures.

The identified patterns confirm that the introduction of integrated digital solutions is a critical factor in improving both the efficiency and accuracy of budget management. Special attention should be paid to the role of tools built based on artificial intelligence. These tools include, in particular, predictive analytics modules for estimating budget revenue, cost classification, and prioritisation algorithms, systems for detecting anomalies in transactional data and platforms for scenario modelling of budget parameters with adaptive settings in real time. Their use ensures the adaptability of financial planning, increases the accuracy of forecasting, and reduces the influence of the human factor. AI models allow for scenario modelling in view of changes in environmental parameters in real time, which substantially increases the validity of management

27 Ministry of Finance of Ukraine. Budgetary policy, 2025. https://mof.gov.ua/uk/budget-policy

28 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

29National Agency of Ukraine on Civil Service. Public finance, 2025. https://nads.gov.ua/publichni-finansi

30 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

31 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

decisions, providing a combination of strategic flexibility with procedural transparency and compliance with ethical standards of digital governance.[32,33]

Accounting for these factors, a retrospective analysis of digital dynamics in the communities of the Lviv region was conducted during 2019-2024. The subject of the study was both changes in the distribution of communities by levels of digital maturity and average spending on IT services, which allows for identifying financial determinants of digital transformation. The results of the dynamics of digitalisation of municipal administration and accompanying budget investments are summarised in Table 2.

Table 2. Dynamics of community digitalisation and IT spending in 2019-2024

Year	Share of communities with integrated digital integration (%)	Share of communities with fragmented digitalisation (%)	Share of communities with a basic level of digitalisation (%)	Average cost of IT services per community (thousand UAH)
2019	7	39	54	110
2020	10	41	49	145
2021	14	44	42	190
2022	18	46	36	240
2023	21	48	31	285
2024	25	49	26	330

Note: the cost figures include the total annual costs of software procurement, server infrastructure maintenance, licenses, technical support, and digital audit, listed on average per community.

[Source: compiled by the authors based on [34,35,36,37,38]]

32 W.A. ADDY, A.O. AJAYI-NIFISE, B.G. BELLO, S.T. TULA, O. ODEYEMI, and T. FALAIYE, Transforming financial planning with AI-driven analysis: A review and application insights. *World Journal of Advanced Engineering Technology and Sciences*, 11(1), 2024, 240-257. https://doi.org/10.30574/wjaets.2024.11.1.0053

33 B.R. REXHEPI, L. MUSTAFA, M.K. SADIKU, B.I. BERISHA, S.U. AHMETI, and O.R. REXHEPI, The impact of the COVID-19 pandemic on the dynamics of development of construction companies and the primary housing market: Assessment of the damage caused, current state, forecasts. *Architecture Image Studies*, 5(2), 2024, 70–79. https://doi.org/10.48619/ais.v5i2.988

34 Ministry of Finance of Ukraine. Budgetary policy, 2025. https://mof.gov.ua/uk/budget-policy

35 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

36 National Agency of Ukraine on Civil Service. Public finance, 2025. https://nads.gov.ua/publichni-finansi

37 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

38 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

Table 2 reflects the gradual changes in the structure of digital maturity of territorial communities in the Lviv region during 2019-2024, accompanied by a steady increase in average IT spending. The share of communities with integrated digital solutions increased from 7% in 2019 to 25% in 2024, indicating a trend towards the spread of full-featured digital solutions in budget process management. Thereby, the share of communities with fragmented digitalisation grew more slowly – from 39% to 49%, which indicated the spread of only partial automation without full integration of systems. The most noticeable decline was in the category of communities with a basic level of digital presence – from 54% to 26%, which indicated the rejection of elementary forms of digitalisation in favour of more complex models. The increase in average spending on IT services from 110 to 330 thousand UAH per community confirmed a direct relationship between the level of digital transformation and the financial capabilities of local authorities, which requires strategic consideration when planning state support for digital initiatives.

4. Effectiveness of using digital tools in budget planning and control

The spread of digital tools in the budget management system of territorial communities in the Lviv region has created prerequisites for improving planning procedures, improving the accuracy of forecasts, strengthening financial control, and reducing transaction risks[39]. The main directions of digitalisation were the introduction of accounting platforms with a modular structure, electronic document management systems, financial data visualisation tools and automated digital controlling mechanisms. The experience of using digital financial services as moderators of the relationship between budget planning and financial results, in particular, recorded in studies on the example of small and medium-sized enterprises in Kenya, confirmed the existence of a positive impact of the digital environment on the quality of the budget process.[40]

39 I. KOLODII, V. KOVALIV, and A. KOLODIY, Diagnosis of financial state and bankruptcy threats of agricultural enterprises of Lviv region in anti-crisis management system. *Scientific Papers. Series: Management, Economic, Engineering in Agriculture and Rural Development*, 22(1), 2022, 321-329.

40 G. JEPLETING, J. TARUS, and Z. SHITOTE, Effects of budget planning on financial performance of selected SMEs in Eldoret town, Kenya moderated by digital finance services. International *Journal of Research and Innovation in Social Science*, 8(11), 2024, 716-729 https://dx.doi.org/10.47772/IJRISS.2024.8110057

A comparative analysis of Lviv region communities by the types of accounting systems used, the level of their automation and the accuracy of forecasting budget indicators (Table 3) showed a substantial differentiation according to these criteria.

Table 3. Characteristics of the use of accounting platforms and the accuracy of budget forecasting in communities

Type of accounting systems used	**Level of budget planning automation**	**Share of communities using (%)**	**Average deviation of actual indicators from planned ones (%)**
Basic accounting systems (without forecasting functions)	Low	44	13.1
Systems with a cost forecasting module	Medium	22	8.4
Integrated platforms with full functionality	High	34	5.7

[Source: compiled by the authors based on [41,42,43,44,45]]

Table 3 demonstrates a clear link between the level of automation of accounting systems and the accuracy of budget forecasting in territorial communities. The highest level of deviation between planned and actual indicators (13.1%) was recorded in communities where basic accounting systems without forecasting functions were used, which indicated limited analytical capabilities and dependence on manual data processing. Significantly better results were shown by communities that implemented systems with a cost forecasting module – they had an average deviation rate of 8.4%. The highest accuracy was achieved by those communities (34% of the sample) that used integrated platforms with full functionality: the average deviation did not exceed 5.7%, which indicated the ef-

41 Ministry of Finance of Ukraine. Budgetary policy, 2025. https://mof.gov.ua/uk/budget-policy

42 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

43 National Agency of Ukraine on Civil Service. Public finance, 2025. https://nads.gov.ua/publichni-finansi

44 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

45 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

fectiveness of an integrated approach to accounting, planning and reporting based on automated digital infrastructure.

A separate role is played by the interaction of accounting systems with other elements of the digital ecosystem. Electronic document management systems operated in 61% of communities, but only a third of them provided integration of such solutions with financial modules[46]. In those communities where such integration was implemented, the average time for approving financial decisions was reduced by about 36%, which confirms the synergy effect of combining accounting and procedural subsystems. The additional introduction of a digital signature, electronic archive, and online monitoring mechanisms not only reduced the administrative burden but also increased the reliability of accounting operations.[47] In some communities (11%), mostly with a high level of financial autonomy, Big Data analytics was used, which allowed for operational adjustment of budget parameters, forecasting Inter-budget transfers and implementing elements of a program-target approach in cost management. This indicates a shift to an analytically sound data-driven budgeting model.

To assess the effectiveness of budget control in territorial communities, a comparative analysis of key indicators for managing financial deviations depending on the availability of digital controlling tools was conducted. The estimated parameters include the frequency of erroneous transactions, the duration of response to deviations, the regularity of analytical reporting, and the frequency of exceeding budget limits. The comparison identified differences in the organisation of internal control between communities with automated monitoring systems and those where control is manual. The generalised results are presented in Figure 2.

46 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

47 M. GULALIYEV, S. ABASOVA, S. GULIYEVA, E. SAMEDOVA, and M. ORUCOVA, The main problems of building the digital economy of Azerbaijan. *WSEAS Transactions on Business and Economics*, 20, 2023, 1383–1395. https://doi.org/10.37394/23207.2023.20.123

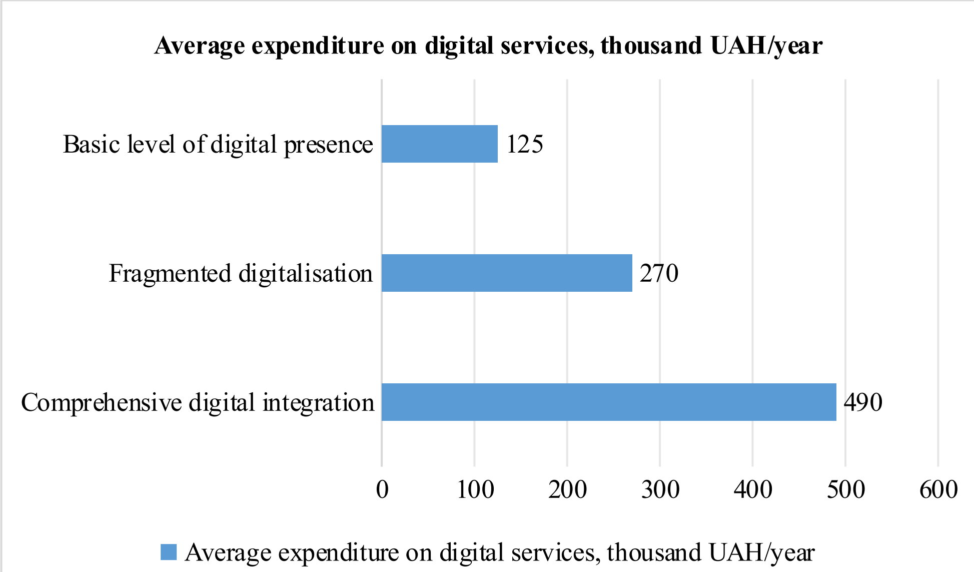


Figure 2. Comparison of the effectiveness of budget control depending on the availability of digital tools in 2024

[Source: compiled by the authors based on [48,49,50,51,52]]

Figure 2 shows a considerable difference in the effectiveness of budget controls depending on the availability of digital tools in communities. In particular, in communities with implemented financial controlling modules, the frequency of exceeding budget limits was only 4.1%, which is almost half as much as in communities without digital solutions (9.6%)[53], and the share of erroneous transactions decreased from 10.3% to 2.8%, indicating a positive impact of automated systems on the accuracy of financial transactions[54]. The average deviation detection time in digitalised communities was 19 hours versus 51 hours in communities without appropriate systems[55], demonstrating a higher speed of risk re-

48 Ministry of Finance of Ukraine. Budgetary policy, 2025. https://mof.gov.ua/uk/budget-policy

49 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

50 National Agency of Ukraine on Civil Service. Public finance, 2025. https://nads.gov.ua/publichni-finansi

51 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

52 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

53 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

54 National Agency of Ukraine on Civil Service. Public finance, 2025. https://nads.gov.ua/publichni-finansi

55 Ministry of Finance of Ukraine. Budgetary policy, 2025. https://mof.gov.ua/uk/budget-policy

sponse. In addition, the level of regular analytical reporting was more than twice as high in communities with digital control (87% vs. 43%)[56], which showed the dependence of information transparency and monitoring discipline on the degree of automation of budget management. Taken together, these indicators underscore the important role of digital tools as a catalyst for analytical efficiency and financial sustainability of the municipal sector.

Therewith, the effective functioning of digital solutions is impossible without an appropriate resource base. The volume of investment in digital infrastructure is a determining factor in achieving a high level of technological maturity.[57] Average annual expenditures on digital services were compared to identify the relationship between the level of digitalisation of communities and the intensity of budget expenditures. The generalised results of the analysis are presented in Figure 3.

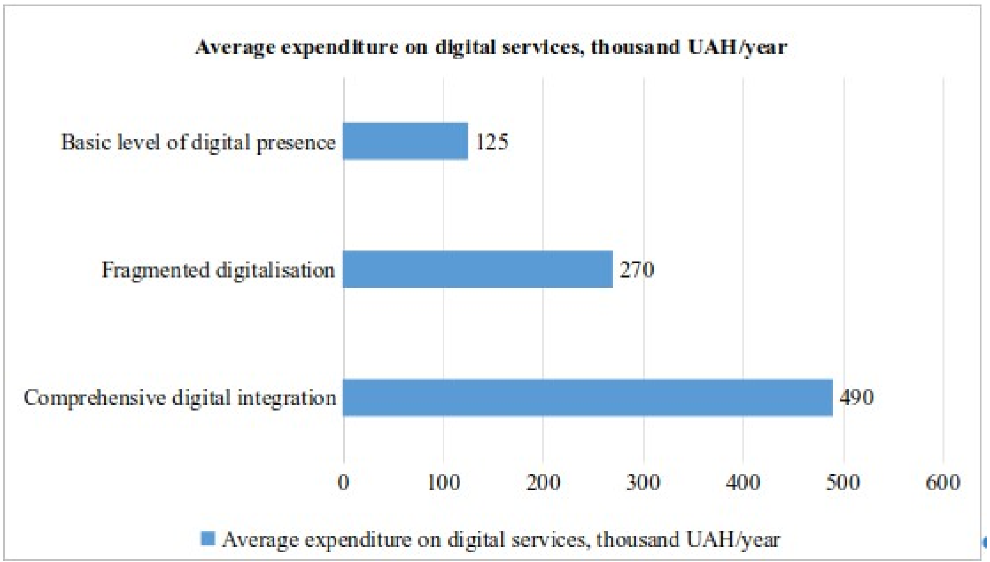


Figure 3. Average annual spending on digital services in communities depending on the level of digital maturity

[Source: compiled by the authors based on [58,59]]

56 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

57 M. ALQSASS, H. JARADAT, B.R. REXHEPI, B.N. ZUREIGAT, J. AL-GASAWNEH, and H. MAALI, The impact of dividends per share and retained earnings per share on share price: A study based on Jordanian companies. *Quality – Access to Success*, 24(197), 2023, 67–74. https://doi.org/10.47750/QAS/24.197.08

58 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

59 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

Figure 3 displays a clear positive correlation between the level of digital maturity of communities and the volume of annual spending on digital services, which proves the critical dependence of digital transformation on financial investment ability. Thus, in communities with integrated digital integration, the average costs amounted to 490 thousand UAH per year, which is almost twice as high as the corresponding indicators for communities with fragmented digitalisation (270 thousand UAH) and more than three times for communities with a basic level of digital presence (125 thousand UAH)[60]. This dynamic reflects both the depth of implementation of technological solutions and the institutional willingness to invest in IT infrastructure, including electronic document management, analytical platforms, technical support, and staff training. Thus, digital modernisation of management processes is not only a matter of strategic choice but also a direct consequence of resource provision, which determines the ability of communities to maintain the continuity and functionality of digital solutions.

The identified statistically significant relationship between the level of distribution of digital tools and the effectiveness of budget planning and control confirmed the feasibility of spreading the practice of attracting external services in the communities of the Lviv region. This primarily concerned the areas of technical support, administration of digital platforms, software updates, and audit of information flows, which formed the prerequisites for improving the efficiency of public administration.

5. Outsourcing practices in the digital financial management environment

Digitalisation of budget management in the communities of the Lviv region was accompanied by an increasing need for external technical, service, and analytical support. Given the limited number of specialised IT personnel and the need to comply with high standards of security and compatibility of digital solutions, the introduction of outsourcing models for delegating technical support functions to external service providers Prozorro[61] has intensified. This approach provided support for digital processes without expanding the management ap-

60 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/
61 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

paratus or increasing internal costs.

Among the key areas of outsourcing support in territorial communities is the maintenance of accounting information systems, server infrastructure administration, support of electronic document management systems and analytical modules, which allowed avoiding the costs of creating internal IT departments, reducing the risks of technical failures, and ensuring timely software updates in accordance with information security requirements.[62,63,64] The delegation of these functions contributed to the standardisation of accounting procedures, the introduction of innovative data verification mechanisms, and the development of industry expertise, which, in turn, created the basis for the unification of financial statements and improved the quality of management decisions. The integrated digital outsourcing model was especially effective in the field of waste management, where technical integration and analytical support allowed for high accuracy, transparency, and flexibility of the system, as illustrated in Table 4.

Table 4. Structure of a digital waste management model with outsourcing elements

System component	Content of functioning
Digital community platform	Automated accounting of routes, volumes, and payments
Service provider	Providing the service, entering operational data
Budget division	Control of financing, reconciliation of fulfilment of contractual obligations
End user	Access to data via a mobile app or online portal
Analytical module	Generating reports, evaluating performance, and environmental indicators

62 S. ABBASOVA AGAMAMED, F. ASGAROVA ALINAZIM, M. ALIYEVA SHABAN, L. HAMIDOVA ADIL, R. QUSHKHANI NASIR, and L. RZAYEVA YUSIF, Problems and prospects in developing the auditing system in Azerbaijan. *Universidad y Sociedad*, 15(2), 2023, 550–561.

63 R. TORMOSOV, I. CHUPRYNA, G. RYZHAKOVA, V. POKOLENKO, D. PRYKHODKO, and A. FAIZULLIN, Establishment of the rational economic and analytical basis for projects in different sectors for their integration into the targeted diversified program for sustainable energy development. *2021 IEEE International Conference on Smart Information Systems and Technologies (SIST)*, 2021, 9465993. https://doi.org/10.1109/SIST50301.2021.9465993

64 M. UMAIR and S. GULIYEVA, Optimizing welfare and market power: Energy storage strategies in renewable-integrated power markets. *Journal of Energy Storage*, 118, 2025, 116315. https://doi.org/10.1016/j.est.2025.116315

[Source: compiled by the authors based on [65,66,67,68,69,70]]

The proposed structure of the digital waste management model provides for an integrated approach to the distribution of functions between the key participants of the system – the territorial community, the service provider, budget divisions, and end users, with the central role of a digital platform that combines logistics, accounting, schedules and financial transactions in real time. This architecture provides transparency, avoiding duplication of information, minimising the influence of the human factor, and providing prompt access to data for making managerial decisions. An important component of the model is an analytical module that evaluates the effectiveness of contracts, conducts environmental monitoring, and generates reports based on quantitative indicators, which substantially strengthens the managerial capacity of budget divisions. Thereby, digital interfaces ensure that end users – both residents and government officials – are involved in the monitoring and feedback system, which increases the transparency and accountability of performers. Together, the digital model with elements of outsourcing forms the technological basis for strategic environmental management, focused on efficiency, flexibility, and datacentricity.

The effectiveness of outsourcing practices depends on the ability of communities to formalise technical requirements, monitor the quality of services, and ensure that external solutions are compatible with internal digital infrastructure.[71] Practice has shown that the greatest effectiveness was achieved by those communities that clearly defined the expected functional results from outsourcing, agreed on the rules of interaction, and periodically adapted the parameters

65 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

66 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

67 Law of Ukraine No. 2807-IX "On the National Informatization Program". 2022. https://zakon.rada.gov.ua/laws/show/2807-20#Text

68 Law of Ukraine No. 2456-VI "On Budget Code of Ukraine". 2010. https://zakon.rada.gov.ua/laws/show/2456-17

69 Resolution of the Cabinet of Ministers of Ukraine No. 357 "On Some Issues of Organizing Electronic Interaction of State Electronic Information Resources". 2018. https://www.kmu.gov.ua/npas/deyaki-pitannya-organizaciyi-elektronnoyi-vzayemodiyi-derzhavnih-elektronnih-informacijnih-resursiv

70 Cabinet of Ministers of Ukraine. Reform of public finance management, 2025. https://www.kmu.gov.ua/reformi/efektivne-vryaduvannya/reforma-derzhavnih-finansiv

71 I.M. MURTEZAJ, B.R. REXHEPI, B. DAUTI, and H. XHAFA, Mitigating economic losses and prospects for the development of the energy sector in the Republic of Kosovo. *Economics of Development*, 23(3), 2024, 82–92. https://doi.org/10.57111/econ/3.2024.82

of cooperation in accordance with changes in the management environment. This is consistent with approaches to dividing outsourcing into tactical and strategic, where the former covers operational tasks (accounting, technical support), and the latter is related to supporting long-term management goals, such as functional capacity growth or digital modernisation (Spiller, 2024).

6. Digital technology integration and outsourcing model in strategic community development management

The complexity of budget management in the territorial communities of the Lviv region in the context of decentralisation, stricter requirements for transparency, and an increase in the volume of information interaction led to the need to transform the organisational architecture of management. In the course of the study, it was determined that the combination of digital services, analytical platforms, and outsourcing mechanisms contributed to increasing the adaptability and effectiveness of management decisions. On this basis, a conceptual model for integrating digital technologies and outsourcing into strategic financial management of community development in the region was developed.

The structure of the model was based on the principle of functional differentiation of management, technical, and service blocks, which allowed centralising information processing, providing technical support for digital systems, and maintainig management control over strategic and financial decision-making. The basic element of the system was the digital platform of the community, which combined modules for accounting, forecasting, monitoring budget programmes, and interfaces for interaction with outsourcing performers. Due to the integration of the platform with contract services, automated updating of operational data, monitoring of the fulfilment of contractual obligations, and generating reports in real time were provided.

The digital platform included accounting modules, electronic document management, a Big Data analytics unit, a programme performance assessment system, and analytical data visualisation. External contractors provided infrastructure administration, software maintenance, functionality updates, and specialised analytical queries. The authority to plan, approve the budget, control costs, and apply strategic analysis remained with the management structures of the community.

The introduction of outsourcing mechanisms in combination with digital technologies provided for a functional differentiation of the technical, analytical, and managerial components of financial administration. This approach helped to delegate operational and service functions to external performers, while retaining the authority to make strategic and budgetary decisions for the community.[72] The structure of the digital platform included a number of modules – from accounting to analytical visualisation, which supported real-time management processes. The generalised components of this integrated model are shown in Table 5.

Table 5. Elements of the digital technology integration and outsourcing model in community financial management

Model component	Functional purpose	Type of interaction
Digital community platform	Centralised data storage, accounting, planning, monitoring	Internal (between structural divisions of the community)
Analytical module (Big Data)	Revenue/expense forecasting, performance analysis	Internal/external (between the community and a specialised analytical contractor)
Joint service centre	Multi-community service: accounting, technical support	Intercommunal (between adjacent communities or their association)
Outsourcing contractor	Technical administration, IT support, service maintenance	External (between the community and the contract supplier company)

72 S. ABBASOVA, V. İSMAYILOV, and N. TRUSOVA, Problems of financing the state budget deficit. *Scientific Bulletin of Mukachevo State University. Series Economics*, 10(4), 2023, 9–19. https://doi.org/10.52566/msu-econ4.2023.09

Community management bodies	Making strategic and financial decisions	Managerial (interaction between management structures and executive blocks)

[Source: compiled by the authors based on [73],[74],[75]]

The presented structure of the model of integration of digital technologies and outsourcing in the financial management of territorial communities reflects a consistent functional distribution between technical, analytical, managerial, and service components. Central to this architecture is the community's digital platform, which provides accounting, planning, monitoring, and centralised data storage, creating conditions for internal information integration between structural divisions. Additional value is an analytical module that can function both based on internal resources and with the involvement of external performers, in particular, in terms of revenue forecasting, cost modelling, and evaluating the effectiveness of budget decisions. This format allows combining technological flexibility with institutional stability, while maintaining strategic control within local governments.

An important element of this model is the joint service centre (JSC), which performs inter-community functions, including accounting, technical support, software updates, and maintenance of IT systems for several united territorial communities at once. The presence of such a tool indicates the relevance of cooperative solutions in conditions of limited resources and the desire to improve the quality of public service by centralising service.[76] Outsourcing companies, in turn, are involved in performing operational functions – digital infrastructure administration, platform maintenance, and implementation of specialised servi-

73 M. FUNDIRA, E.I. EDOUN, and A. PRADHAN, Adapting to the digital age: Investigating the frameworks for financial services in modern communities. *Business Strategy & Development*, 7(1), 2024, e303. https://doi.org/10.1002/bsd2.303

74 V. DEZEM, S. SACHAN, M. MACEDO, and A. ANDRADE LONGARAY, Optimal data-driven strategy for in-house and outsourced technological innovations by open banking APIs. *Future Business Journai*, 10(1), 2024, 116. https://doi.org/10.1186/s43093-024-00397-3

75 M.A. PETCU, M.I. SOBOLEVSCHI-DAVID, and S.C. CUREA, Integrating digital technologies in sustainability accounting and reporting: Perceptions of professional cloud computing users. *Electronics*, 13(14), 2024, 2684. https://doi.org/10.3390/electronics13142684

76 E.R. SAMEDOVA, S.K. MAMEDOVA, M.S. ALIYEVA, M.T. SAMADOVA, and L.A. KASHIYEVA, Exchange rate regime in a crisis: The case of Azerbaijan. *Journal of Eastern European and Central Asian Research*, 9(4), 2022, 679–690. https://doi.org/10.15549/jeecar.v9i4.1107

ces, reducing the burden on the internal human resources potential of communities. However, making strategic and financial decisions and managing budget priorities remain in the exclusive competence of local self-government bodies, which guarantees the preservation of managerial autonomy and compliance of public activities with the interests of the community.[77]

In this context, joint service centres appear as an important tool for improving the efficiency and integrity of the digital transformation of financial management at the local level. Such structures are designed to provide stable support for financial, analytical, and information technology processes, accumulating functional resources of several related communities. The effectiveness of the JSC largely depends on clear regulation of authority, standardisation of information exchange procedures, and consistency of communication between communities and executive contractors. A generalised logic for the operation of a joint service centre is presented in Table 6.

Table 6. Logic of the functioning of the JSC

Process stage	Activity	Interaction with communities	Result / value for the community
Data collection and processing	Consolidation of data from all communities	Providing unified formats	Reduce errors, speed up input, and standardise data
Budget analysis and control	Generating analytical reports, controlling expenses	Data transfer to management bodies	Making informed financial decisions, reducing risks
Software maintenance	Technical support, updates, and security	Community access to services	Continuous operation of systems, reducing IT maintenance costs
Communication with contractors	Control of contracts with outsourcers	Quality monitoring, cost reduction	Improving the quality of services, transparency of contract interaction

77 G. ARACHI, V. BUCCI, E. LONGOBARDI, P.M. PANTEGHINI, M.L. PARISI, S. PELLEGRINO, and A. ZANARDI, Fiscal reforms during fiscal consolidation: The case of Italy. *FinanzArchiv*, 68(4), 2012, 445–465. https://doi.org/10.1628/001522112X659574

[Source: compiled by the authors based on [78,79,80]]

Table 6 illustrates a logically ordered model of JSC functioning as a coordinating institution that provides comprehensive digital support to communities through unification, centralisation, and analytical integration of financial and administrative processes. At every stage – from data collection to interaction with contractors – the JSC performs not only technical functions but also creates added value for communities, helping to standardise information, reduce errors, and enhance efficiency. Centralised software maintenance provides equal access to digital services and reduces IT infrastructure costs, which is especially important for small or resource-constrained communities. The analytical component of the model allows performing comparative monitoring, identifying deviations in real time, and generating reports necessary for making informed management decisions. Of particular value is the role of the JSC in interaction with outsourcing structures, where centralised control and cost reduction can improve the quality of services and ensure transparency of contracts. As a result, this model promotes economies of scale, minimises data fragmentation, and creates a sustainable digital environment for effective financial administration at the inter-municipal level.

In the context of the growing digital complexity of budget management, communities are increasingly resorting to outsourcing individual functions, in particular accounting support, platform maintenance, and analytical modelling. However, the choice between internal support and external service requires a balanced analysis, considering not only the cost, but also quality, time, organisational, and security parameters. A comparison of key criteria was conducted, supplemented by identifying potential risks when using outsourcing models to evaluate the effectiveness of each approach. The generalised results are presented in

78 E. ASCHAUER, R. QUICK, and M. ISACK, The use of shared service centers in the audit industry and the impact on financial analyst perceptions. *Journal of International Accounting Research*, 24(1), 2025, 143-161. https://doi.org/10.2308/JIAR-2022-021

79 X. CHEN, Q. DAI, and C. NA, How finance shared services affect profitability: An IT business value perspective. *Information Technology and Management*, 25(4), 2024, 367-382. https://doi.org/10.1007/s10799-023-00391-1

80 Y. SHATILA, H. ABDULSATTAR, H. YANG, and J. WANG, Optimization-based control algorithm: Development and testing for dynamic on-demand SAV operation. In: *2024 IEEE 27th International Conference on Intelligent Transportation Systems (ITSC)*. Piscataway: IEEE, 2024, 2856-2862. http://dx.doi.org/10.1109/ITSC58415.2024.10919641

Table 7.

Table 7. Comparative evaluation of the effectiveness of internal support and outsourcing in the financial management of the community

Evaluation criteria	**Internal support (own specialists)**	**Outsourcing (external service providers)**	**Potential risks of outsourcing**
Average maintenance costs	Higher (28.6 thousand UAH/month)	Lower (20.9 thousand UAH/month)	Dependence on external price changes
Reporting accuracy	Errors – 4.9%	Errors – 3.1%	Possibility of quality reduction when changing the contractor
Speed of reporting	Average delay – 3.2 days	Average delay – 1.1 days	Risk of loss of efficiency in the event of technical failures
Technological support	Limited, depends on the available staff	Professional, up-to-date	Potential problems with platform integration
Scalability flexibility	Low	High	Loss of control over critical elements
Monitoring and management	Full internal control	Control is delegated, but an audit is possible	Risk of insufficient transparency of the contractor's activities
Saving expertise	Formed within the community	Partially lost	Loss of internal competence in the long term
Security aspects	Internal access to financial data	Data can be processed outside the community	Risk of leaks or unauthorised access

[Source: compiled by the authors based on [81,82,83,84,85]]

Table 7 data confirm the benefits of the outsourcing model in community financial management, particularly in reducing costs, improving reporting accuracy, and speeding up support procedures, while identifying a number of management and security risks that accompany delegating functions to external sup-

81 Ministry of Finance of Ukraine. Budgetary policy, 2025. https://mof.gov.ua/uk/budget-policy

82 State Statistics Service of Ukraine. About the service, 2025. https://www.ukrstat.gov.ua/

83 National Agency of Ukraine on Civil Service. Public finance, 2025. https://nads.gov.ua/publichni-finansi

84 Open Budget. State budget web portal for citizens, 2025. https://openbudget.gov.ua/

85 Prozorro. What is Prozorro? 2025. https://prozorro.gov.ua/

pliers. The average monthly expenses for accounting services for outsourcing amounted to 20.9 thousand UAH, which is 27% lower than for the maintenance of internal specialists (28.6 thousand UAH), and the share of errors in reporting decreased from 4.9% to 3.1%, pointing to a higher quality of data verification and professional expertise of performers. There was also a remarkable reduction in reporting deadlines (from 3.2 to 1.1 days), which increased the rhythm of the budget process. However, outsourcing was associated with the risks of dependence on third-party organisations, potential loss of control over critical functions, and vulnerability to cyber threats, especially in the case of processing financial data outside the community. In addition, prolonged delegation of functions can lead to a weakening of internal competence, which complicates forming a personnel reserve at the local level. Although outsourcing demonstrates tangible effectiveness in the short term, its implementation requires a balanced approach, accounting for the institutional maturity of the community, risk management, and balancing between economy and managerial autonomy.

Thus, the effectiveness of outsourcing solutions in the financial management of territorial communities requires a comprehensive approach to management decision-making, considering control mechanisms, contractual tools, and quality monitoring systems on top of cost and time parameters. It is advisable to use combined models: technical administration and support can be delegated to external contractors, while the functions of analytical generalisation, strategic forecasting, and control over the targeted use of funds should remain within the management structures of the community. This provides for a balance between resource savings, governance transparency, and institutional sustainability of the budget process.

7. Discussion

The results of the study demonstrate a statistically significant relationship between the level of digital maturity of territorial communities and the effectiveness of budget management implementation. Communities with developed digital infrastructure were characterised by higher accuracy of budget forecasting, lower frequency of transaction errors, increased speed of response to financial deviations, and better analytical support for management decisions.

Integration of automated planning, control, and electronic document management systems has helped optimise budget administration procedures and strengthen financial discipline. The use of outsourcing models in a digital environment reduced the internal staffing burden, standardised functional processes, and provided a flexible response to management challenges.[86,87,88] Nevertheless, the effectiveness of these solutions remained dependent on the level of technical support, the digital competencies of personnel, and the availability of stable mechanisms for institutional interaction.

Evaluation of the effectiveness of digital tools in the budget administration of communities in the Lviv region confirmed a positive correlation between digital maturity and planning effectiveness. This relationship was manifested in improving the accuracy of forecast indicators, reducing the error rate, and expediting the response to changes in budget parameters. Similar patterns were recorded in a study by Tafra and Tankosić[89], who analysed the impact of artificial intelligence, machine learning, and Big Data analytics on the effectiveness of management decisions in the small and medium-sized business sector. The results of the comparison confirmed the similarity of the effects of digital transformation in the public and corporate sectors, with differences due to the scale of application and the level of institutional readiness. For territorial communities, the key limitation remained the uneven distribution of technical resources and digital skills of personnel.[90]

---

86 M. ALIYEVA, Company management decision-making based on the analysis of events after the reporting period. *Problems and Perspectives in Management*, 21(4), 2023, 739–756. https://doi.org/10.21511/PPM.21(4).2023.55

87 S. STEFANOV, Construction contracts expenses and revenues reporting. *IOP Conference Series: Materials Science and Engineering*, 951(1), 2020, 012029. https://doi.org/10.1088/1757-899X/951/1/012029

88 S. STEFANOV, D. GEORGIEVA, and J. VASILEV, Issues in the disclosure of financial information by multinational enterprises. *TEM Journal*, 11(1), 2022, 5–12. https://doi.org/10.18421/TEM111-01

89 V. TAFRA, and J.V. TANKOSIĆ, Impact of digital transformation on financial management of small and medium enterprises. *Journal of Agronomy, Technology and Engineering Management*, 8(1), 2025, 1405-1410. https://doi.org/10.55817/RVEW4219

90 A. HUTOROV, Y. LUPENKO, S. SHERSTIUK, Y. PONOMARENKO, O. HUTOROVA, and O. YERMOLENKO, Innovative potential of the agrarian sector of Ukraine: Forming and efficiency of realization. *TEM Journal*, 10(3), 2021, 1228–1238. https://doi.org/10.18421/TEM103-29

The obtained empirical data confirmed the impact of digital solutions – in particular, analytical modules, electronic document management, and automated forecasting platforms – on the growth of accuracy, validity, and efficiency of budget decisions. The dependence of the effectiveness of digital transformation on the level of financial awareness of personnel is revealed, which is consistent with the results of a study by Alkhwaldi[91], dedicated to the functioning of FinTech in Jordan. The author proved that the effectiveness of digital services is determined both by technical parameters and the ability of institutions to perceive the functional advantages of relevant technologies. Comparative analysis confirmed the importance of the human factor in the processes of digital modernisation at the level of local self-government bodies.

Digital transformation was accompanied by the active introduction of innovative tools: FinTech solutions, automated accounting modules, analytical systems based on Big Data, and digital controlling elements.[92,93] These technologies help reduce transaction risks, improve the accuracy of forecasting, and efficiency of budget management procedures. Similar provisions are highlighted by Kamuangu[94], who systematises transformations in the financial sector under the influence of digital tools. The importance of addressing the challenges of information security, regulatory environment, and technological adaptation, which is also critical in the field of public finance, was noted. The results also confirmed the feasibility of an interdisciplinary approach and consideration of the ethical dimension in digital transformation research.

Analysis of the effectiveness of tools based on artificial intelligence in budget management pointed to their positive impact on the accuracy of tax foreca-

91 A.F. ALKHWALDI, Digital transformation in financial industry: Antecedents of fintech adoption, financial literacy and quality of life. *International Journal of Law and Management*, 2024. https://doi.org/10.1108/IJLMA-11-2023-0249

92 O. JOSEPH, E. DAHAN, I. AVIV, I. HADAR, E. BORDO, and D. PEZO, Requirements engineering for integrating quantum key distribution with blockchain systems. *2025 IEEE 33rd International Requirements Engineering Conference Workshops (REW)*, 2025, 375–382. https://doi.org/10.1109/REW66121.2025.00055

93 O. LAKTIONOVA, T. ISMAILOV, O. KALININ, V. GONCHAR, and O. ONOFRIICHUK, Digitalization and management of crypto assets as a source of investment for green projects. *E3S Web of Conferences*, 558, 2024, 01028. https://doi.org/10.1051/e3sconf/202455801028

94 P. KAMUANGU, Digital transformation in finance: A review of current research and future directions in FinTech. *World Journal of Advanced Research and Reviews*, 21(3), 2024, 1667-1675. https://doi.org/10.30574/wjarr.2024.21.3.0904

sting and adaptability of budget planning, along with the reduction of transaction errors. In communities where artificial intelligence algorithms were implemented, a higher level of automation of decision-making processes and developed operational control systems were recorded. A comparison with a study by Mohsen et al.[95] demonstrated the effectiveness of using machine learning and chatbots in improving service and analytics functions. It was also noted that the predictive analytics and process automation tools demonstrate limited performance without adapting business processes with the participation of qualified personnel. This underlines the relevance of the development of internal digital expertise as a prerequisite for the sustainable functioning of the intellectual financial infrastructure of communities.

The impact of digital technologies identified in the study covered not only the functional aspects of budget forecasting and control but also the overall managerial capacity of territorial communities. Using the example of the Lviv region, it is confirmed that the combination of digitalisation with outsourcing support mechanisms contributed to strengthening the flexibility of management decisions and the ability of communities to adapt to organisational and resource constraints. Similar findings were presented by Laajini and Tadjousti[96], where social and territorial innovations in local development management were considered in the context of institutional support for partner models. Comparing these results gave reason to believe that the development of digital infrastructure in Ukraine was associated with the expansion of inclusive management processes, which, in turn, affected the growth of territorial capacity and financial efficiency.

Further analysis confirmed that the synergy of digital solutions with the analytical potential of management structures contributed to the development of integrated approaches to forecasting, controlling, and adaptive budget planning. In this context, the need to develop integrated models for assessing the effectiveness of digital transformation, which would combine economic and insti-

95 S.E. MOHSEN, A. HAMDAN, and H.M. SHOAIB, Digital transformation and integration of artificial intelligence in financial institutions. *Journal of Financial Reporting and Accounting*, 23(2), 2024, 680-699. https://doi.org/10.1108/JFRA-09-2023-0544

96 T. LAAJINI, and H. TADJOUSTI, The contribution of social and territorial innovation to territorial development in Morocco: Insights from a systematic review. *African Journal of Science, Technology, Innovation and Development*, 17(2), 2025, 291-301. https://doi.org/10.1080/20421338.2025.2461206

tutional parameters, has become more relevant. The conceptual foundations of such models were outlined in a study by Rossi et al.[97], which proposes a social welfare index based on a combination of indicators of innovation, scientific activity, and creativity. The authors' proposed use of cluster analysis for spatial typologisation was relevant for assessing the degree of digital integration in municipal administration. The use of such tools helped identify regional imbalances and institutional barriers, and form strategic approaches to digital modernisation of communities.

Within the framework of the study, a considerable unevenness of digital transformation among territorial communities was recorded, which was manifested in differences in the level of integration of digital tools, access to technological resources, and the capacity for institutional renewal. In some communities, digitalisation was limited to basic accounting and control functions, while others introduced comprehensive systems for budget planning, monitoring, and public relations. Such differences were consistent with the provisions of the hierarchical regional innovation system concept proposed by Tartaruga et al.[98], which explains the asymmetry of digital development by the hierarchy of access to resources, centralisation of powers, and socio-economic stratification. Within the framework of local analysis, this concept enabled the interpretation of the uneven digitalisation not only as a consequence of regulatory and organisational factors but also as a manifestation of limited institutional inclusivity. This, in turn, confirmed the importance of adapting inclusive approaches to the introduction of digital innovations in public administration as a component of environmentally and socially oriented municipal policy.

The analysis of digital transformation in the communities of the Lviv region emphasised the importance of forming integrated models of digital interaction focused on combining managerial, social, and environmental dimensions. This approach was particularly relevant for mountainous and remote areas

97 L. ROSSI, M.G. PASCA, G. ARCESE, and S. POPONI, Innovation, researcher and creativity: A complex indicator for territorial evaluation capacity. *Technology in Society*, 77(1), 2024, 102545. https://doi.org/10.1016/j.techsoc.2024.102545

98 I. TARTARUGA, F. SPEROTTO, and L. CARVALHO, Addressing inclusion, innovation, and sustainability challenges through the lens of economic geography: Introducing the hierarchical regional innovation system. *Geography and Sustainability*, 5(1), 2024, 1-12. https://doi.org/10.1016/j.geosus.2023.10.002

characterised by spatial fragmentation. In a study by Sgroi and Modica[99], the effectiveness of using digital technologies for the development of local economies, was demonstrated, in particular, in the field of sustainable tourism. The example of using mobile applications to improve access to services in environmental complexes confirmed the feasibility of digital integration into various areas of territorial administration. This model of cross-sectoral digital interaction was also relevant in the field of municipal property management, logistics, and environmental monitoring. In this context, digital transformation opened up new opportunities for combining budget planning platforms with information ecosystems of accounting, operational support, and feedback, ensuring a holistic adaptation of management systems to territorial challenges.[100]

The study analyses the practice of integrating outsourcing models into local planning processes by delegating certain functions to non-governmental organisations. It is established that this approach combined the potential for improving operational efficiency with organisational risks associated with the regulation of delegated powers and strategic coherence of management goals. The examination of an example of involving a nonprofit organisation in district development planning in Oklahoma City, conducted by Lee and Harris[101], confirmed the effectiveness of flexible interaction with the public through non-institutional mechanisms. However, the authors noted that excessive formalisation of contractual obligations made it difficult to implement long-term strategic intentions. Similar challenges were mentioned in the review of communities in the Lviv region, particularly when implementing outsourcing approaches in the areas of waste management and financial-analytical support. The results proved the need to develop mechanisms for strategic complicity between municipalities and performers to ensure consistent and balanced results, in addition to technical regula-

---

99 F. SGROI, and F. MODICA, Digital technologies for the development of sustainable tourism in mountain areas. *Smart Agricultural Technology*, 8(1), 2024, 100475. https://doi.org/10.1016/j.atech.2024.100475

100 K. KETNERS, A. JAROCKIS, and M. PETERSONE, State budget system improvement for informed decision-making in Latvia. *Scientific Bulletin of Mukachevo State University. Series Economics*, 11(3), 2024, 86–99. https://doi.org/10.52566/msu-econ3.2024.86

101 C.A. LEE, and J.C. HARRIS, Outsourcing neighborhood planning processes? A case study of a nonprofit in the City of Oklahoma City. *Journal of Planning Education and Research*, 44(3), 2024, 1898-1911. https://doi.org/10.1177/0739456X221131743

tions for delegating functions.

The expansion of outsourcing practices in the context of the digital transformation of public administration was accompanied by the delegation of certain management and service functions to external suppliers. Such processes contribute to increased functional efficiency, while simultaneously increasing the need for careful monitoring of the social consequences of relevant decisions. Kiely et al.[102] explored the phenomenon of skeletal community development, in which partnerships with non-governmental organisations could lead to the reproduction of social inequality and increased mechanisms of control over communities. It is noted that even in conditions of formal transparency, this practice created risks of normalising asymmetries in access to services and resources. In the context of the digital transformation of financial management, these observations pointed to the need to critically evaluate outsourcing strategies not only in terms of economic feasibility but also accounting for the principles of management ethics, inclusivity, and social responsibility.

The dependence of the effectiveness of digital outsourcing solutions on compliance with the principles of sustainability emphasised the relevance of the concept of sustainable outsourcing, which involves the inclusion of economic, environmental, and social parameters in public administration practices. Akbari[103] stressed the need to consider environmental impacts, comply with labour standards, and reinforce the resilience of institutions to external risks. The empirical evidence obtained confirmed that communities that implemented digital outsourcing models in the areas of waste management or analytical support achieved the highest performance, provided that transparent procedures, quality control of services, and compliance of digital tools with current regulatory and ethical requirements were observed. This made moving from traditional outsourcing to responsible delegation models focused on long-term institutional sustainability more feasible.

---

102 E. KIELY, R.R. MEADE, and K. SWIRAK, Community development, the carceral state and the necessary challenge of penal abolitionism. *Community Development Journal*, 59(4), 2024, 599-619. https://doi.org/10.1093/cdj/bsae049

103 M. AKBARI, Sustainable outsourcing: Managing global responsibilities. In: M. Akbari, *The Road to Outsourcing 4.0: Next-Generation Supply Chain*. Singapore: Springer, 2024, 119-146. https://doi.org/10.1007/978-981-97-2708-7_6

The study also reviews the dilemma of strategic choice between attracting external outsourcing and developing the internal potential of digital competencies in conditions of limited resources. Langerman and Leung[104] investigated the comparative advantages of Agile and DevOps models in internal digital transformation processes, which provided reduced dependence on external performers and increased the level of autonomy of organisations. The authors underlined the importance of managerial flexibility, prompt implementation of changes, and the motivational level of personnel. In the communities of the Lviv region, such challenges were recorded when choosing between outsourcing IT functions and developing internal service structures, which demonstrates the feasibility of a combined approach in strategic management of financial processes.

The results obtained confirmed the effectiveness of implementing outsourcing strategies in the digital environment, provided that there are clearly defined responsibilities of the parties, functional monitoring of the quality of services, and technical compatibility of external solutions with existing internal information systems. A study by Lok et al.[105] proposed a model of sustainable outsourcing relationships in facilities management that relies on four parameters: asset ownership, control, strategic positioning, and long-term planning. The correlation of this model with the results obtained in the study showed that the effectiveness of delegating functions in communities largely depended on the ability of institutions to formalise the principles of outsourcing interaction, determine strategic priorities, and ensure that delegated functions correspond to municipal development goals.

Summarising the results of the study of digital transformation of financial management in territorial communities confirmed that the combination of digital tools with outsourcing mechanisms contributed to improving the effectiveness of budget planning, financial control, and reporting. Integration of analytical platforms, electronic document management, and modules based on Big Da-

---

104 J. LANGERMAN, and W.S. LEUNG, The effect of outsourcing and insourcing on Agile and DevOps. *Journal of Information Technology Teaching Cases*, 14(2), 2024, 192-199. https://doi.org/10.1177/20438869231176841

105 K.L. LOK, A. SMITH, A. OPOKU, and C. CHEN, The challenges of sustainable development on facilities management outsourcing services: an investigation in educational facilities. *Sustainability*, 13(15), 2021, 8156. https://doi.org/10.3390/su13158156

ta and AI provided a reduction in the number of errors, improved forecasting accuracy, and reduced decision-making time. In turn, outsourcing practices helped to optimise the use of resources, increase the flexibility of management structures, and adaptability to personnel and technical constraints, which strengthened the institutional capacity of communities to function sustainably in the context of digital transformation overall.

8. Conclusion

Digital transformation of financial management in the territorial communities of the Lviv region was found to be an important tool for organisational modernisation, which affected the accuracy, speed, and transparency of managerial decision-making. Empirical data showed a stable, statistically significant relationship between the level of digital integration and the efficiency of the budget process, reducing time costs, decreasing the number of errors, and improving predictive accuracy. In communities with integrated digital architecture, the share of technical errors in financial documents was 3.2%, while in communities with a basic level of digitalisation – 11.4%. The average deadline for approving a financial decision was reduced from 6.5 days to 1.9 days, and the average processing time for a budget document – from 7.1 to 2.4 days. These results confirm the positive impact of digital tools on the quality of budget administration.

In the typologisation process, three levels of digital maturity were identified: integrated digital integration (21% of the sample), fragmented digitalisation (48%), and the basic level of digital presence (31%). The use of integrated accounting platforms with forecasting modules reduced the average deviation of actual and planned indicators to 5.7%, while in communities using basic accounting systems, this figure was 13.1%. In addition, in communities with implemented digital monitoring modules, the frequency of exceeding budget limits was limited to 4.1%, which is almost half as much as in communities where manual monitoring was used (9.6%). The level of regular analytical reporting in automated systems was 87% compared to 43% in communities without digital mechanisms, indicating a strengthening of analytical capacity through digitalisation.

Outsourcing practices covering accounting support, technical support, and analytical modelling were identified to have major potential to improve operational efficiency. 38% of communities used contract support for accounting processes, which reduced the average monthly costs to UAH 20.9 thousand, while in the case of maintaining an internal IT specialist, the costs reached UAH 28.6 thousand. In addition, the error rate in outsourcing reporting was 3.1%, and delays in submitting documentation were limited to 1.1 days, which is twice as good as internal support.

Based on the collected data, a conceptual model for integrating digital services and outsourcing into the community financial management system was developed, which provides for a functional differentiation of management, technical, and service functions. The key element of the model is a digital community platform, supplemented with an analytical module, a joint service centre, and contract services. Lowering the cost of IT services, improving the efficiency of reporting and reducing the error rate was also influenced by the inter-community JSCs since the centralised model that provided stable support for digital processes in conditions of resource constraints (in particular, costs were reduced to 20.9 thousand UAH/month, reporting delays – up to 1.1 days, and the share of errors in reporting – up to 3.1%, with an increase in the regularity of analytical reporting to 87%). This model demonstrates high adaptability to the conditions of decentralised governance.

The study had methodological limitations associated with different completeness of access to data, the inability to verify individual digital indicators in communities with a basic level of accounting, and difficulties in standardising analytical reporting. Promising areas of further research are the development of indicators for assessing the effectiveness of digital governance in communities and modelling the impact of analytical digital infrastructure on medium-term budget sustainability.

Brunela Kullolli
Lecturer, Full Doctor at the Faculty of Political and Legal Sciences in the Aleksander Moisiu University of Durres
brunelakullolli45@gmail.com
Aibek Adanbaev
Senior Lecturer at the Department of Industrial Engineering in the Kyrgyz-Turkish Manas University
Karlis Ketners
Partnership Professor, PhD at the Faculty of Bioeconomy Development in the Vytautas Magnus University Agriculture Academy
Raimundas Jurka
Professor, PhD at the Institute of Criminal Law and Procedure in the Mykolas Romeris University
Peter Kusznieruk
Rector, Full Doctor of the Warsaw Medical Academy

Strategic approaches to ensuring information security in the context of digitalisation of economic processes

Abstract

The purpose of this study was to identify the relationship between digital security and economic sustainability in the context of digital governance transformation on the example of Albania, Lithuania, Estonia, Croatia, and the Czech Republic. The methodological framework included structural-functional analysis, processing of statistical indicators, and econometric modelling of the dependencies between the level of digital security and indicators of economic activity. Special attention was paid to the analysis of modern cybersecurity regulations adopted in 2024-2025, with a focus on sectoral regulation and the powers of national authorities. The study found that countries with greater values of the digital maturity index (up to 74.3 in Estonia) and human capital (up to 0.79), as well as with a prominent level of employee coverage by corporate cyber awareness programmes (up to 81% in the same country), demonstrated lower productivity losses due to cyber incidents, greater resilience to solvency risks (up to 0.33 in the Czech Republic), and a greater share of e-commerce in the gross domestic product (GDP) (up to 9.8% in the Czech Republic). The active implementation of digital security tools was found to be accompanied by a decrease in the negative impact of incidents on the activities of enterprises, although in some cases (e.g., in Estonia) high losses were maintained with a small number of violations. The study determined that the introduction of cloud services and multi-level authentication is critical to increasing the adaptability of economic systems to digital challenges and reducing the overall level of vulnerability of enterprises. The summary results of the study highlighted the need to integrate technical solutions, digital education, institutional protocols, and corporate cyber hygiene culture into a single, coherent digital security strategy that factors in the specifics of national digitalisation models. The findings of this study can be used by public authorities, small and medium-sized businesses, analytical institutions, and developers of digital strategies to optimise information security management mechanisms.

KEYWORDS: Human Capital, E-Commerce, Cyber Threats, Response Coordination, Critical Infrastructure, Risk Management.

1. Introduction

The conditions of digital transformation of economic systems have led to an increase in the dependence of business entities on information and communication technologies, which actualised information security threats at the level of both enterprises and states. The increase in the intensity of cyber threats is accompanied by a more complex structure, which requires a systematic approach to risk management in the digital environment. The growing share of e-commerce in the gross domestic product (GDP), the expanding use of cloud services, Security Information and Event Management and Endpoint Detection and Response solutions, and increasing regulatory pressure require the development of an effective digital security model adapted to the specifics of national economies. The research covers the low level of digital skills among employees, fragmentation of corporate cyber awareness programmes, limited integration of technical solutions, and insufficient inter-institutional coordination, which hinders effective response to cyber threats.

The complexity of these challenges creates the need to analyse the interrelationships between digital indicators of economic activity, institutional preparedness for cyber risks, and human potential as an element of resilience to information threats. Small and medium-sized enterprises operating in a resource-poor environment are the most susceptible to the negative effects of cyber incidents, which makes it necessary to analyse them in detail. In this context, it is essential not only to determine the level of digital maturity and implemented technologies, but also to assess the effectiveness of digital security policies in the context of Albania, Lithuania, Estonia, Croatia, and the Czech Republic, which are at different stages of digital development.

Pashaj et al.[1] found that Albania's critical information infrastructure is highly vulnerable to systemic cyber threats due to the fragmented legal framework and insufficient coordination between government agencies. The researchers found a low level of implementation of technical security protocols, which increases the risk in the context of digital transformation. Tiri and Aliaj[2] confirmed this trend, emphasising the insufficient effectiveness of the national regulator in the field of information security, despite the implementation of certain EU directives. The analysis found that the level of regulatory readiness in Albania is still below the European average, which hinders the development of the digital economy.

According to Çeko[3], the educational environment in Albania lacks a systematic approach to the training of cybersecurity specialists, which affects the overall level of digital literacy. Mockaitė[4] found that Lithuania actively employs strategic communication strategies as a tool to counter information threats, which

1 K. PASHAJ, E. GJIKA and L. BASHA, *The importance of critical information infrastructure protection – Case of Albania*, in *Journal of Natural Sciences*, 2024, 35, pp. 278–293.

2 E. TIRI and E. ALIAJ, *Cyber-security regulation in Albania*, in *Perspectives of Law and Public Administration*, 2023, 12(2), pp. 275–282.

3 E. CEKO, *Cyber security issues in Albanian higher education institutions curricula*, in *CRJ*, 2021, 1, pp. 56–65.

4 G. MOCKAITĖ, *Military and political strategic communication*…, 2024, Kaunas: Vytautas Magnus University.

allows increasing institutional resilience. Štitilis et al.[5] empirically proved the existence of a comprehensive system of hybrid cyber threats in Lithuania, which combines technical, political, and social components of influence.

Bukauskas et al.[6] identified the key competencies necessary to ensure cybersecurity in a small digital market, while emphasising the need to integrate the standards of the European e-Competence Framework. Ghelani[7] provided a global overview of the types of cyber threats and indicates that the increasing complexity of attacks requires constant updating of security protocols at the enterprise level. Olaniyi et al.[8] developed the CyberFusion model, which combines the ISO/IEC 27001 standard, mobile forensics, and risk management into a single digital security architecture, which reduces incidents in the business environment.

Yee and Zolkipli[9] empirically confirmed that maintaining the principles of confidentiality, integrity, and availability (CIA-triad) is a critical factor in preventing the compromise of digital systems. Bondarenko et al.[10] found that the effectiveness of legal mechanisms for information security in the context of digitalisation depends on the consistency between technical standards and legislative norms, as shown by the example of the European Union.

Kalinin et al.[11] created a methodology for assessing economic security in digital investment processes, which considers the risks of digital instability and allo-

5 D. STITILIS, M. LAURINAITIS and M. WARREN, *Hybrid cyber threats: Lithuanian context*, in *Journal of Information Warfare*, 2024, 23(1).

6 L. BUKAUSKAS, A. BRILINGAITĖ, A. JUOZAPAVIČIUS, D. LEPAITĖ, K. IKAMAS and R. ANDRIJAUSKAITĖ, *Remapping cybersecurity competences in a small nation state*, in *Heliyon*, 2023, 9(1), p. e12808.

7 D. GHELANI, *Cyber security, cyber threats, implications and future perspectives: A review*, 2022, 1, pp. 1-8.

8 O.O. OLANIYI, O.O. OMOGOROYE, F.G. OLANIYI, A.I. ALAO and T.O. OLADOYINBO, *CyberFusion protocols…*, in *Journal of Engineering Research and Reports*, 2024, 26(6), pp. 31–49.

9 C.K. YEE and M.F. ZOLKIPLI, *Review on confidentiality, integrity and availability in information security*, in *Journal of ICT in Education*, 2021, 8(2), pp. 34–42.

10 S. BONDARENKO, O. MAKEIEVA, O. USACHENKO, V. VEKLYCH, T. ARIFKHODZHAIEVA and S. LERNYK, *The legal mechanisms for information security in the context of digitalization*, in *Journal of Information Technology Management*, 2022, 14, pp. 25–58.

11 O. KALININ, V. GONCHAR, O. ZAKHARCHENK, O. DARUSHYN, M. MALTSEV and P. DATSIUK, *A comprehensive methodology for evaluating economic security in the digitalization of investment processes*, in *Revista de Gestão Social e Ambiental*, 2024, 18(5), p. e05441.

ws formalising the impact of cyber threats on investment projects. Kraus et al.[12] determined that the digitalisation of business processes within the Industry 4.0 paradigm creates new growth vectors, but at the same time generates risks associated with the information vulnerability of industrial platforms.

Despite the prominent level of theoretical and empirical development of certain aspects of digital security, most studies do not include a cross-country comparative analysis of the relationship between digital infrastructure, human capital, and economic vulnerability of enterprises. There are no integrated approaches to assessing the impact of corporate cyber awareness programmes on economic losses and productivity risks. The issue of optimising digital security in the context of the specifics of small economies, such as Albania, Croatia, Czech Republic, Estonia, Lithuania, and Estonia, is not sufficiently studied, considering complex institutional and technological changes.

The purpose of this study was to establish the relationship between the parameters of digital security and the economic efficiency of digital transformation on the example of Albania, Lithuania, Estonia, Croatia, and the Czech Republic – five European countries with different models of digital governance. To fulfil this purpose, the following research objectives were formulated: to characterise the institutional features of digital risk management and the structure of financial losses due to cyber incidents; to determine the degree of prevalence of information security technologies among enterprises and the level of digital maturity of the economy; to analyse indicators of human capital and coverage of corporate cyber awareness programmes; to identify statistical correlations between digital security and economic parameters, including productivity, the share of e-commerce in GDP, and solvency of business entities.

2. Materials and methods

The study employed the methodology of quantitative comparative analysis with elements of econometric evaluation and structural-functional approach. The type of research was defined as analytical, with an emphasis on cross-country comparison of statistical and regulatory indicators. The timeframe covered the

12 N. KRAUS, K. KRAUS and O. MANZHURA, *Digitalization of business processes… Industry 4.0*, in *WSEAS Transactions on Business and Economics*, 2021, 18, pp. 569–580.

period from January 2024 to May 2025, which corresponds to the current stage of implementation of digital strategies and updated information security policies in the European Union and candidate countries. The study was focused on identifying the relationships between the level of digital readiness, human capital development, and economic resilience in the face of cyber threats.

To form the empirical basis, official sources of the European Commission (n.d.) were used, specifically, the Digital Economy and Society Index database, statistical reports of the European Statistical Agency Eurostat (n.d.). The sample included Albania, Lithuania, Estonia, Croatia, and the Czech Republic as examples of countries with different depths of digital transformation, contrasting institutional models of cyber defence, and various levels of implementation of corporate and government digital literacy programmes. The choice was based on the need for representative coverage of European Union countries with distinct starting points and dynamics of digital development. To ensure the legal validity of the comparative analysis, the provisions of national cybersecurity laws adopted in 2024-2025 in Albania (Monitoring Report of the National Cyber Security Strategy 2020-2025 of Albania)[13], Lithuania (Law of the Republic of Lithuania No. XII-1428 "On Cyber Security")[14], Estonia (Cybersecurity Strategy 2024-2030 "Cyber-Conscious Estonia")[15], Croatia (Law of the Republic of Croatia No. 14/2024-254 "On Cyber Security")[16], and the Czech Republic (Law of the Czech Republic No. 181/2014 "On Cyber Security")[17] were considered. These documents outline the powers of the relevant cybersecurity authorities, define the areas of digital security regulation, and confirm the implementation of a sectoral approach to digital risk management. Additionally, for Albania, the indica-

13 *Monitoring Report of the National Cyber Security Strategy 2020–2025 of Albania*, 2024, at <https://aksk.gov.al/wp-content/uploads/2024/10/MONITORING-REPORT-.pdf>

14 *Law of the Republic of Lithuania No. XII-1428 "On Cyber Security"*, 2014, at <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/f6958c2085dd11e495dc9901227533ee>

15 *Cybersecurity Strategy 2024–2030 "Cyber-Conscious Estonia"*, 2024, at <https://www.enisa.europa.eu/sites/default/files/ncss-map/strategies/reports/EE_NCSS_2024_en.pdf>

16 *Law of the Republic of Croatia No. 14/2024-254 "On Cyber Security"*, 2024, at <https://narodne-novine.nn.hr/clanci/sluzbeni/2024_02_14_254.html>

17 *Law of the Czech Republic No. 181/2014 "On Cyber Security"*, 2014, at <https://www.e-sbirka.cz/sb/2014/181?zalozka=text>

tors presented in the reports of the European Commission[18] were analysed, including the number of cyber incidents in SMEs, the level of basic technical protection, the coverage of employees with educational programmes, and the compliance of national legislation with the requirements of Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)"[19]. In the case of Lithuania, materials from the Information Society Development Committee of Lithuania[20] were used. For Estonia, the reports of the Ministry of Economic Affairs and Communications of Estonia[21] were used. As for Croatia, information from the Croatian National Bank Cybersecurity Centre[22] and Digital Croatia Strategy 2032[23] was used. Data from the Czech Republic were obtained from the National Cyber and Information Security Agency of the Czech Republic[24].

The methodological part of the study was based on a combination of quantitative analysis of statistical indicators and the logic of comparative assessment of digital infrastructure and security policies. The content analysis of strategic documents and regulatory frameworks of the sample countries was applied, followed by coding of variables using formalised scales. The existence of a sectoral approach to information security management was determined in a binary for-

18 EUROPEAN COMMISSION, *Albania 2024 Report*, 2024, at <https://enlargement.ec.europa.eu/document/download/a8eec3f9-b2ec-4cb1-8748-9058854dbc68_en?filename=Albania%20Report%202024.pdf

19 *Directive of the European Parliament and of the Council No. 2022/2555…*, 2022, at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2555>

20 INFORMATION SOCIETY DEVELOPMENT COMMITTEE OF LITHUANIA, *Information Society Progress Indicators*, 2024, at <https://interoperable-europe.ec.europa.eu/collection/iopeu-monitoring/governance-lithuania>

21 MINISTRY OF ECONOMIC AFFAIRS AND COMMUNICATIONS OF ESTONIA, *Cyber Security in Estonia*, 2023, at <https://www.ria.ee/sites/default/files/documents/2023-02/Cyber-Security-in-Estonia-2023.pdf>

22 CROATIAN NATIONAL BANK CYBERSECURITY CENTRE, *NIS2 Transposition into Croatian National Legislation*, 2024, at <https://www.advantageaustria.org/hr/NIS2_Transposition_in_Croatia_ZG.pdf>

23 *Digital Croatia Strategy 2032*, 2022, at <https://commission.europa.eu/projects/adoption-digital-croatia-strategy-2032_el>

24 NATIONAL CYBER AND INFORMATION SECURITY AGENCY OF THE CZECH REPUBLIC, *Publications & Reports*, n.d., at <https://nukib.gov.cz/en/infoservis-en/publications-reports/>

mat: a value of 1 meant the existence of an institutionalised approach at the level of relevant ministries or agencies, while 0 meant its absence. For indicators such as the Human Capital Index and the e-Government Development Index[25], a scale from 0 to 1 was used, where values closer to 1 indicated a greater level of human capital or digital infrastructure development, respectively.

The technological equipment of enterprises was analysed by summarising national indicators for the implementation of key cybersecurity solutions, including threat detection systems, endpoint protection solutions, and multi-level authentication. For all variables of this type, a relative scale with a 100% threshold was used – the share of enterprises declaring the implementation of the relevant technology was interpreted as a percentage. An analogous approach was applied to the Digital Skills Indicator, which was defined as the percentage of the population demonstrating basic or above basic digital skills according to the Eurostat classification. For the indicator of the digital maturity of the economy and the share of e-commerce in the structure of GDP, a scale of 0-100% was used to ensure consistency with Digital Economy and Society Index statistical reports[26].

A multi-level gradation was used to estimate economic losses from cyber incidents by category of enterprise (small, medium, large). The "small" category included enterprises with up to 50 employees and a turnover of up to EUR 10 million; "medium" – up to 250 employees and up to EUR 50 million, respectively; "large" – above these thresholds. For each category, the average losses incurred in 2024 were recorded, as well as the number of documented cyber incidents per enterprise. To model the relationships between digital risks and economic performance, the Ordinary Least Squares method was used for continuous variables (productivity, turnover) and logistic regression for probabilistic variables (loss of solvency, business interruption). The values of the regressors were normalised within the interval from -1 to +1, which allowed quantifying the strength and vector of the impact of the respective digital factor on the economic result. All models were based on cross-country comparisons using unified scales of variables: relative losses, digital competence indices, digital coverage, incident rate, etc.

25 WORLD BANK, *E-Government Development Index*, n.d., at <https://data360.worldbank.org/en/dataset/UN_EGDI>

26 EUROPEAN COMMISSION, *Digital Economy and Society Index*, n.d., at <https://digital-strategy.ec.europa.eu/en/policies/desi>

The e-commerce indicator was calculated as the share of the value of online sales in the structure of the GDP of the respective country. It was based on annual Eurostat[27] data on the volume of digital transactions in the corporate sector. The Digital Economy and Society Index was integrated with the e-commerce indicator through the inclusion of the index of digital integration of business as one of the key components of overall digital maturity. This helped to investigate the extent to which the level of digital transformation of enterprises is related to the dynamics of e-commerce development and financial sustainability of business entities.

The results were interpreted considering the correlation structure of dependencies between individual indicators. Changes in the aggregate digital security indicators over time, the ratio of technological readiness and factual resilience to cyber threats, and the relationship between the population's digital skills and the level of losses from incidents were considered. The principle of comparison between countries with high and low values of key indicators was applied, which helped to identify generalised models of economic response to digital challenges. To verify the significance of the results, the study employed confidence interval criteria with a statistical error level not exceeding 5%.

3. Results

3.1. Regulatory and institutional framework for ensuring information security in the context of digital transformation of the economy

In building a national information security system, the key role is played by regulations that establish requirements for digital protection at all levels of the economy. In the context of harmonisation with the EU legislation, the countries of Eastern and Southern Europe and the Baltic States are reviewing their strategic and legal approaches to cyber resilience, adapting them to the provisions of Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)" and other sectoral docu-

27 EUROSTAT, *Statistical data on digital economy and society*, n.d., at <https://ec.europa.eu/eurostat>

ments. Considering these transformations, it is advisable to summarise the main characteristics of the latest cybersecurity regulations adopted in 2024-2025 in Albania, Lithuania, Estonia, Croatia, and the Czech Republic (Table 1).

Table 1. Key parameters of cybersecurity legislation (2024-2025)

Country	Title of the legislative act	Competent authority	Areas of coverage	Availability of a sectoral approach
Albania	Law No. 25/2024 on Cybersecurity (2024)	National Directorate for e-Governance and Cybersecurity	Critical infrastructure, telecoms, civil service	Yes
Lithuania	Law on Cybersecurity (2018, revision 2024)	National Cyber Security Centre under the Ministry of Defence	Digital services, defence, finance	Yes
Estonia	Law on Cybersecurity within the framework of the Strategy 2024-2030 (2024)	Information System Authority	Public services, infrastructure, digital governance	Yes
Croatia	Law on Cybersecurity (2024)	National Cyber Defence Centre at the Ministry of the Interior	Service operators, public institutions, energy sector	Yes
Czech Republic	Law on Cybersecurity (2025)	National Agency for Cyber and Information Security	Business, critical suppliers, Industry 4.0	Yes

[Note: the clarification of the names of some bodies is adapted to the official abbreviations in regulatory documents]

[Source: developed by the authors based on data from Monitoring Report of the National Cyber Security Strategy 2020-2025 of Albania, Law of the Republic of Lithuania No. XII-1428 "On Cyber Security", Cybersecurity Strategy 2024-2030 "Cyber-Conscious Estonia", Law of the Republic of Croatia No. 14/2024-254 "On Cyber Security", and the Law of the Czech Republic No. 181/2014 "On Cyber Security"]

The comparative analysis revealed a significant degree of unification in the formal cybersecurity frameworks implemented in the countries under study. All five countries adapted their national legislation to the requirements of NIS2, ensuring the establishment of a competent authority, expanding the scope of coverage, and introducing a sectoral approach to risk management. A gradual detailing of the laws towards the separation of the public and private sectors is observed, which is particularly pronounced in the Czech Republic and Lithuania. Although all countries formally adopt a sectoral approach, the scope of regulatory instruments varies significantly, indicating differences in practical implementation. The structure of the competent authorities also demonstrates varying degrees of centralisation: from integrated information agencies (Estonia) to specialised bodies within ministries (Croatia, Lithuania).

In building an effective digital security system, one of the key conditions is the existence of an institutionally capable specialised body responsible for implementing cybersecurity policy[28]. In Central and Eastern Europe, such structures operate with varying degrees of centralisation, which affects both the quality of oversight and the ability to respond quickly to incidents. A significant sign of institutional effectiveness is also the existence of formalised mechanisms for interagency cooperation, especially in the context of the cross-influence of digital risks across multiple sectors of the economy. Table 2 presents a comparison of the institutional architecture of cybersecurity bodies in Albania, Croatia, Czech Republic, Estonia, Lithuania, and Estonia.

Table 2. Institutional structure of cybersecurity authorities in selected countries (2024-2025)

Country	Specialised body	Centralisation level	Control and monitoring functions	Interagency cooperation
Albania	National Directorate for e-Governance and Cybersecurity	High (single coordinating body)	Oversight, audit, incident investigation	Through the inter-agency cybersecurity council
Lithuania	National Cyber Security Centre under the Ministry of	Medium (separation from the MoD)	Inspections, compliance checks, certification	Joint platforms with defence and digital ministries

28 B. ABDYGALYM, M. SAMBETBAYEVA, A. YERIMBETOVA, A. NEKESSOVA, N. TASBOLATULY, N. SMAILOV and A. NAZYMKHAN, *NLP models for military terminology analysis and detection of information operations on social media*, in *Computers*, 2025, 14(11), p. 485.

	Defence			
Estonia	Information System Authority	High (centralised through Information System Authority)	Real-time monitoring, response, audits	Integrated communication protocols with all sectors
Croatia	National Cyber Defence Centre at the Ministry of Interior	Medium (shared between the MoI and sectoral agencies)	Monitoring, technical expertise, Computer Emergency Response Team coordination	Through an interagency working group under the government
Czech Republic	National Agency for Cyber and Information Security	High (central regulator)	Conformity assessment, supervision, response coordination	Formalised coordination with government and business structures

[Source: developed by the authors based on from European Commission, Eurostat, Monitoring Report of the National Cyber Security Strategy 2020-2025 of Albania, Law of the Republic of Lithuania No. XII-1428 "On Cyber Security", Cybersecurity Strategy 2024-2030 "Cyber-Conscious Estonia", Law of the Republic of Croatia No. 14/2024-254 "On Cyber Security", and the Law of the Czech Republic No. 181/2014 "On Cyber Security"]

A comparative analysis of Table 2 revealed that all five countries have a stable specialised cybersecurity body that meets the basic requirements of NIS2. However, the level of centralisation of these structures varies considerably: in the Czech Republic, Estonia, and Albania, there is a clear centralised management, while in Lithuania and Croatia, functions are distributed among several administrative entities. This leads to differences in day-to-day incident response mechanisms, institutional accountability, and the quality of oversight. The role of interagency cooperation is particularly significant in the context of multi-sectoral risks, where the degree of synchronisation between government agencies, the defence sector and private companies is crucial. The Czech Republic has a strong degree of formalisation of cooperation, while Croatia and Albania use interagency councils as the principal format of coordination.

The assessment of the regulatory potential in the field of information security should be supplemented with quantitative indicators that characterise the level of digital maturity of public administration and regulatory readiness to counter cyber threats. In this context, it is advisable to use two integrated indices: The e-Government Development Index, which measures the ability of a state to provide digital services, and the Global Cybersecurity Index, which measures the capacity of state institutions to ensure cybersecurity. The analysis of data for 2024 and the assessment of expected values for 2025 allow establishing the dynamics of regulatory strengthening and the effectiveness of national strategies (Figure 1). This approach helps not only to compare countries with each other, but also to identify patterns between institutional modernisation and the level of digital governance.

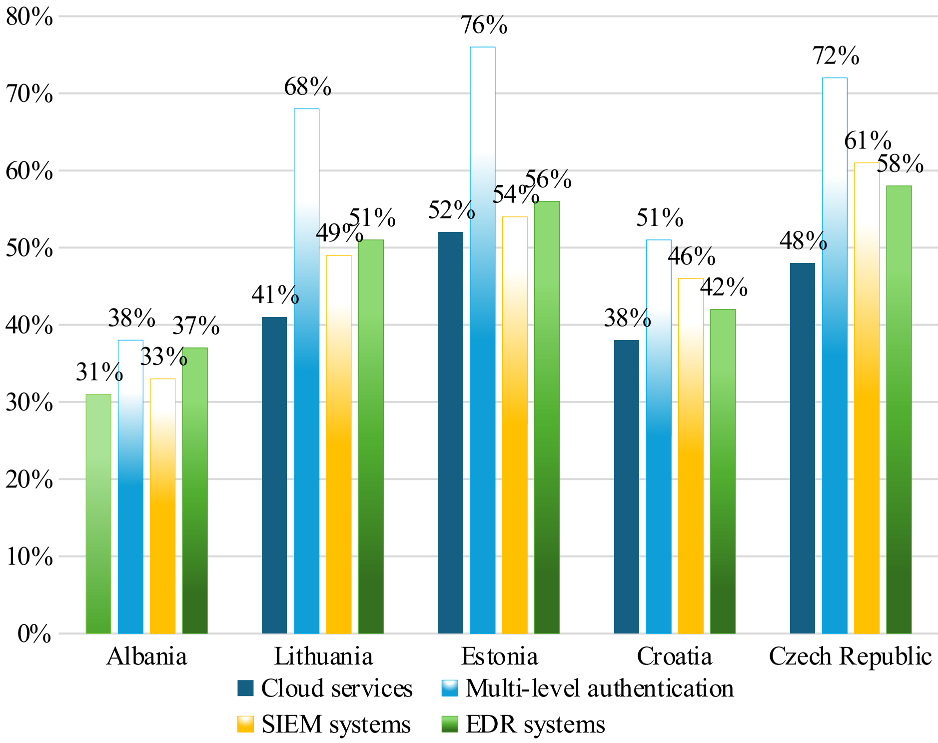


Fig. 1. Indices of digital maturity and regulatory readiness (2024-2025)

[Source: developed by the authors based on data from European Commission, Eurostat]

Analysis of Figure 1 shows an overall positive trend in both digital maturity and regulatory readiness in all five countries. Estonia maintains its leading position in both the e-Government Development Index and Global Cybersecurity Index, demonstrating the highest degree of alignment between digital governance and cyber defence. Lithuania and the Czech Republic also show consistently high scores, with little progress for 2025, which correlates with institutional centralisation and the implementation of strategic plans. Albania, albeit having the lowest values among the countries analysed, shows a significant increase, which indicates the effectiveness of the implementation of the new legislation. Croatia is at the middle level, but the dynamics of its improvement are less pronounced, which may suggest limited institutional flexibility or fragmented implementation of the digital security strategy.

3.2. Economic impact of digital threats on business: analytical assessment of risks and losses

In the context of growing digital threats, quantifying the real economic consequences that businesses suffer as a result of information security breaches is of particular significance. The experience of the five countries under study showed that small and medium-sized enterprises are still the most vulnerable to cyberattacks, due to limited access to specialised cyber defence technologies and a lack of specialised competencies. Therewith, extensive financial losses are also recorded in the large business segment, particularly in areas that are critically dependent on digital technologies, such as industrial production, logistics, and energy. Considering this, it is advisable to present a generalised empirical picture that combines data on the number of registered cyber incidents and an estimate of direct economic losses, differentiated by type of enterprise. Such detailing allows identifying differences in the structure of risks depending on the organisational and economic scale of companies. Table 3 presents the volume of recorded cybersecurity breaches and the corresponding financial losses for small, medium, and large businesses in the five countries studied in 2024.

Table 3. Number of cyber incidents and direct economic losses for businesses in 2024 (by business size)

Country	Incidents (small)	Incidents (medium)	Incidents (large)	Losses (small), EUR mn	Losses (medium), EUR mn	Losses (major), EUR mn
Albania	157	62	21	4.3	2.6	1.1
Lithuania	121	78	32	5.1	4.2	2.3
Estonia	108	84	29	6.7	4.9	3.2
Croatia	94	66	27	3.9	2.8	1.7

Czech Republic	87	71	36	4.8	3.5	3

[Note: the number of incidents is recorded according to the criteria of national cyber monitoring systems; losses reflect only direct losses (including operational, technical, and legal costs) without considering loss of reputation or indirect effects]

[Sources: developed by the authors based on data from Eurostat]

The analysis of Table 3 shows a high concentration of cyber incidents in the small business segment in all five countries, which is accompanied by substantial financial losses. The highest burden in terms of the number of incidents was observed in Albania (157 cases), but Estonia suffered the largest economic losses among small businesses (EUR 6.7 mn), which indicates the depth of the impact of cyber incidents on the financial stability of digitally integrated businesses. In the medium-sized segment, the largest losses were also recorded in Estonia (EUR 4.9 million) and Lithuania (EUR 4.2 mn), which correlates with a prominent degree of digital integration but also increased risk. In the large enterprise sector, the Czech Republic demonstrates the greatest number of incidents (36) with corresponding losses of EUR 3 mn, which is explained by the diverse industrial structure of the economy. The findings confirmed the need for a differentiated approach to risk management depending on the size of the enterprise and the level of digital maturity.

In the study of the effects of digital threats on business activities, the key role is played by econometric assessment, which enables quantitative verification of the relationship between the frequency of cyber incidents and financial and economic indicators. Particular attention was paid to three variables: labour productivity, turnover, and the ability of enterprises to maintain solvency after an incident. Modelling was performed using the Ordinary Least Squares method and logistic regression, which helped to obtain estimates of both continuous and probabilistic changes. Table 4 summarises the results of the models for Albania, Croatia, Estonia, Lithuania, and the Czech Republic.

Table 4. Results of econometric models on digital risks in business (2024)

Country	Ordinary Least Squares coefficient	Ordinary Least Squares coefficient	Probability of losing solvency (logit model)	Probability of business interruption >24

	(productivity)	(turnover)		hours (logit model)
Albania	-0.38	-0.34	0.41	0.28
Lithuania	-0.26	-0.22	0.36	0.24
Estonia	-0.31	-0.25	0.32	0.22
Croatia	-0.29	-0.24	0.39	0.27
Czech Republic	-0.27	-0.21	0.33	0.26

[Note: logit model – logistic regression to estimate the probability of an event occurring; "productivity" – the ratio of gross value added to the number of employees; "turnover" – total revenue from sales of goods and services for a calendar year. The values of the Ordinary Least Squares coefficients reflect the change in the dependent variable with each added incident; probabilities in logit models are estimated values based on the regression function]

[Source: developed by the authors based on data from European Commission, Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)", Information Society Development Committee of Lithuania, Ministry of Economic Affairs and Communications of Estonia, Croatian National Bank Cybersecurity Centre, Digital Croatia Strategy 2032, National Cyber and Information Security Agency of the Czech Republic (n.d.), World Bank]

The results of Table 4 show a significant negative impact of digital incidents on key financial and economic indicators of enterprises in all five countries. The greatest level of sensitivity to productivity decline is observed in Albania (-0.38), which indicates a significant drop in business performance in the face of cyber risks. Estonia demonstrates a less negative impact in terms of turnover (-0.25) but is more effective in deterring business interruption (>24 hours), indicating a better balance between digital vulnerability and reactive capacity. The Czech Republic has the lowest probability of losing solvency among the countries analysed (0.33), which may be due explained by the higher penetration of certified cyber defence systems. Lithuania and Croatia occupy intermediate positions but show a sharper reaction in cases of logistical and reputational disruptions. The consolidated data set confirmed the need not only to respond to incidents, but also to implement a preventive risk management model as an economic function of digital threat management.

3.3. Technological infrastructure and innovative solutions as factors of resilience to information threats

The intensity of the implementation of technological solutions in the field of information security is a significant criterion for the resilience of digital infrastructure. Businesses operating in a highly digitalised environment are forced to adapt their risk management systems to meet the growing range of cyber threats. The use of cloud services, multi-level authentication, security event analysis systems, and endpoint security tools ensures rapid response, reduces the probability of compromising digital assets, and increases trust in digital business platforms.

To compare the level of technological readiness of business entities in Albania, the Czech Republic, Estonia, Lithuania, Croatia, and the Czech Republic, the share of enterprises that used key information security tools as of 2024 was summarised (Figure 2). The data covers four technology categories that are recognised as critical in digital transformation policies: cloud services, multi-level authentication, Security Information and Event Management and Endpoint Detection and Response systems.

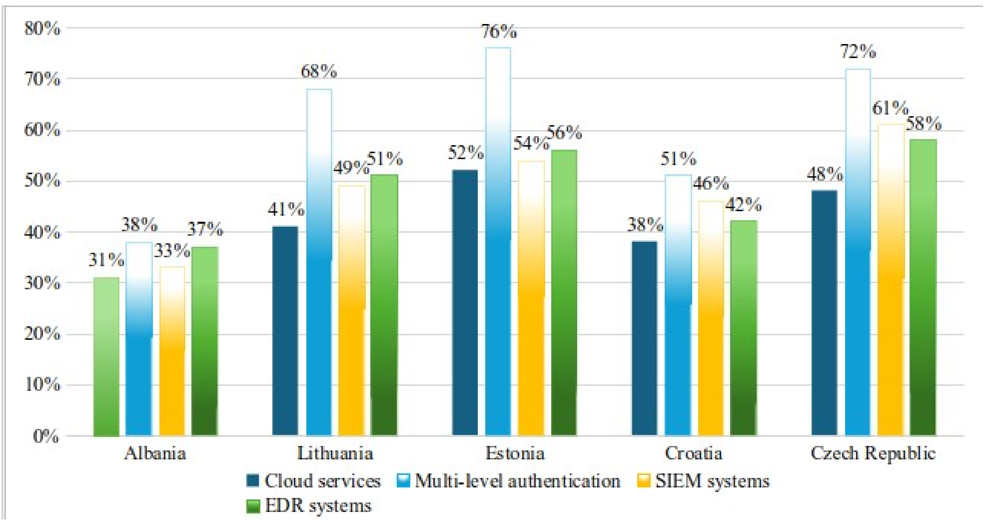


Fig. 2. Share of enterprises using basic information security technologies in 2024 (% of the total number of companies)

[Source: developed by the authors based on data from European Commission, Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)", Information Society Development Committee of Lithuania, Ministry of Economic Affairs and Communications of Estonia, Croatian National Bank Cybersecurity Centre, Digital Croatia Strategy 2032, National Cyber and Information Security Agency of the Czech Republic, World Bank]

The analysis of Figure 2 shows significant differences in the degree of implementation of information security technologies between the countries under study. Estonia and the Czech Republic demonstrate the greatest values, where more than half of enterprises use cloud services, multi-level authentication, Security Information and Event Management, and Endpoint Detection and Response. In Lithuania, the level of technological integration is somewhat lower, but consistently exceeds the EU average in the SME (small and medium-sized enterprises) segment. Croatia and especially Albania are falling behind in all respects, indicating a need for stronger institutional incentives for digital modernisation. Overall, Figure 2 illustrates the direct correlation between the development of digital security and the overall digital maturity of an economy.

The level of digital maturity of the economy and the volume of e-commerce in the structure of GDP form key indicators of a country's ability to adapt to the challenges of the digital environment (Table 5). These parameters reflect both the technical infrastructure and the degree to which digital solutions are integrated into everyday business practices. Of particular significance is the correlation between the Digital Economy and Society Index and the share of e-commerce, as it allows assessing the effectiveness of digital policies in terms of economic performance. This approach was employed to conduct a comparative analysis of five countries to identify patterns of digital growth.

Table 5. Digital maturity and share of e-commerce in GDP in 2024

Country	Digital Economy and Society Index	Share of e-commerce in GDP (%)
Albania	46.1	4.9
Lithuania	59.8	7.2
Estonia	74.3	8.6
Croatia	57.5	5.7
Czech Republic	69.2	9.8

[Note: e-commerce – electronic commerce estimated as a share of total GDP based on national macroeconomic statistics and digital trade reports]

[Source: developed by the authors based on data from European Commission, Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)", Information Society Development Committee of Lithuania, Ministry of Economic Affairs and Communications of Estonia, Croatian National Bank Cybersecurity Centre, Digital Croatia Strategy 2032, National Cyber and Information Security Agency of the Czech Republic, World Bank]

The analysis of Table 5 confirms the existence of a stable positive correlation between the level of digital maturity and economic activity in the field of e-commerce. The Czech Republic (Digital Economy and Society Index – 69.2, e-commerce share – 9.8 %) and Estonia (Digital Economy and Society Index – 74.3, e-commerce – 8.6 %) demonstrate the greatest values for both indicators, which indicates the successful integration of digital solutions into business operations and system support for e-commerce. Lithuania, with a Digital Economy and Society Index of 59.8 and an e-commerce share of 7.2%, occupies an intermediate position with a fairly strong level of digital development and a steady increase in online sales. At the same time, Croatia (Digital Economy and Society Index – 57.5; e-commerce – 5.7%) and especially Albania (Digital Economy and Society Index – 46.1; e-commerce – 4.9%) show lower indicators, which may be the result of limited institutional support for digital entrepreneurship or fragmented implementation of technical tools. Overall, these dynamics point to the need to align technological potential with economic models of digitalisation to achieve full-scale scaling effects in the digital economy.

3.4. Human capital potential and information security culture in the context of economic digitalisation

The level of human capital development and digital skills of the population are fundamental variables that determine the ability of states to respond sustainably to information threats in the digitalised economy. Indicators that measure these aspects allow assessing both the potential of national education systems and the degree of adaptation of the workforce to the requirements of the digital market. In the context of ensuring information security, these parameters are indirect but key indicators of the overall readiness of society for cyber risks. A prominent level of digital competences directly affects the effectiveness of data protection measures in business, public administration, and everyday digital consumption[29].

To assess the relationship between human capital development and the level of digital security, a comparative assessment of two comprehensive indicators was performed: Human Capital Index and Digital Skills Indicator in five countries of the region (Table 6). The data presented for 2024 allows not only comparing the overall level of human development but also identifying structural differences in aspects of digital training of the population. This approach is relevant for formulating recommendations for further investment in education and retraining in the field of information security.

Table 6. Human capital and digital skills indices in five countries in 2024

Country	Human Capital Index (2024)	Digital Skills Indicator (2024)
Albania	0.58	45.2
Lithuania	0.71	63.4
Estonia	0.79	72.1
Croatia	0.68	58.7
Czech Republic	0.75	66.5

[Note: Human Capital Index is a composite indicator of the World Bank that assesses the level of education, health, and expected productivity of the population; Digital Skills Indicator is a metric of the European Commission that measures the availability of basic and advanced digital competencies among working-age people]

[Source: developed by the authors based on data from European Commission, Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)", Information Society Development Committee of Lithuania, Ministry of Economic Affairs and Communications of Estonia, Croatian National Bank Cybersecurity Centre, Digital Croatia Strategy 2032, National Cyber and Information Security Agency of the Czech Republic, World Bank]

Analysis of Table 6 shows a clear correlation between the level of general human capital and digital skills. The greatest values of both indicators are recorded in Estonia: 0.79 for the Human Capital Index and 72.1% for the Digital Skills Indicator, indicating an in-depth integration of digital competences into the education, healthcare, and training systems. The Czech Republic (0.75 and

29 S. KENGESBAYEVA, A. RAZAQUE, N. SMAILOV, Z. KALPEYEVA and U.R. KABIEVNA, *Optimizing resource allocation for 5G Internet-of-Things networks using machine learning techniques*, in *2025 IEEE 1st Secure and Trustworthy Cyberinfrastructure for IoT and Microelectronics, Conference Proceedings*, Institute of Electrical and Electronics Engineers, Dayton, 2025.

66.5%) and Lithuania (0.71 and 63.4%) show relatively balanced development, indicating a steady combination of institutional capacity and the adoption of digital practices. Croatia has a human capital index of 0.68 and a digital skills index of 58.7%, which may indicate regional disparities or fragmentation of educational and digital initiatives. Albania has the lowest indicators (0.58 and 45.2%, respectively), which indicates the need for comprehensive structural investments in human development, including digital literacy, as these aspects directly affect the state's ability to ensure effective cybersecurity.

The effectiveness of information security largely depends on the level of staff awareness, particularly in the context of detecting phishing attacks, malware, and other typical threats. In this regard, the role of corporate digital security literacy programmes is important. Such programmes are implemented at the level of enterprises and institutions of various sizes and demonstrate significant differences in terms of the scope of employee coverage, regularity of implementation, and the format of the activities involved. An empirical analysis of such programmes in five countries reveals the correlation between information security culture and the level of digital resilience (Table 7).

Table 7. Comparison of corporate information security awareness programmes in five countries (2024)

Country	Employee coverage (%)	Frequency of events	Types of activities
Albania	37	Annually	Online tutorials
Lithuania	68	Once every six months	Online courses, quizzes
Estonia	81	Quarterly	Phishing simulations, trainings
Croatia	59	Annually	Video tutorials, memos
Czech Republic	74	Quarterly	Trainings, phishing simulations

[Note: the table shows the typical formats of training events used in internal corporate information security awareness programmes. Phishing simulations – specially created emails that simulate phishing attacks to diagnose the level of employee training. The regularity of training events, interactivity of the material and the level of staff coverage are critical factors in the formation of an effective information security culture, which should be considered when developing strategies at the state and corporate levels]

[Source: developed by the authors based on data from European Commission, Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity

Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)", Information Society Development Committee of Lithuania, Ministry of Economic Affairs and Communications of Estonia, Croatian National Bank Cybersecurity Centre, Digital Croatia Strategy 2032, National Cyber and Information Security Agency of the Czech Republic, World Bank]

The analysis of Table 7 reveals significant differences in the organisation of corporate cybersecurity training programmes in the five countries studied. The greatest level of employee coverage of these events was recorded in Estonia (81 %) and the Czech Republic (74 %), where the highest frequency of their conduct is also observed – quarterly. These countries use interactive training methods, such as phishing simulations, situational tests, and practical training, which ensures high staff involvement and creates an internal culture of responsibility for information security. This approach enhances the organisations' ability to respond to digital threats and reduces the probability of human error in breaching internal security protocols.

In Lithuania, corporate training initiatives are based primarily on online courses supplemented by gamification elements such as quizzes and interactive tests. This form of presentation ensures accessibility of the material and reaches a wide audience but is inferior to Estonia and the Czech Republic in terms of intensity and practical orientation of training. In Croatia and Albania, the level of employee participation in relevant programmes is significantly lower, with only 37% in Albania. The key form of training in these countries is limited to one-off briefings and standard presentations, which does not allow for sustainable learning of skills and the formation of behavioural models of cyber hygiene. The limited frequency and lack of an adaptive approach reduce the effectiveness of such measures, especially in the context of the dynamic growth of digital risks.

Summarising the above, there is arguably a direct link between the intensity of corporate cyber education programmes and the effectiveness of digital security policies at the micro level. Countries with a higher proportion of employee coverage, regular training, and the use of innovative methods demonstrate greater adaptability to digital challenges and better economic resilience in the face of cyber threats. This highlights the need to institutionalise corporate training practices as one of the key elements of the national cyber strategy.

To systematise the institutional state of implementation of digital security strategies in Albania, Croatia, Czech Republic, Estonia, Lithuania, and Estonia, a comparative expert assessment of the strengths and weaknesses of national cyber defence models was conducted. The Table 8 summarises the results of the assessment by the criteria of strategic comprehensiveness, best practices, and key challenges in the implementation of digital policies. It serves as a basis for proceeding to a more in-depth analytical summary of the reasons for the vulnerability of certain elements of the cybersecurity system and the effectiveness of the approaches used to reduce digital risks.

Table 8. Comparative assessment of the strategic level, practices and identified gaps in cybersecurity (2024-2025)

Country	Level of strategic complexity	Most characteristic strengths	Key weaknesses/implementation challenges
Estonia	Most comprehensive strategy (Strategy 2024-2030, Information System Authority integration)	High digital integration, clear role of the regulator, coverage of digital education	High losses even with developed infrastructure; sensitivity of complex systems
Czech Republic	High	Stable regulatory framework, clear governance (National Agency for Cyber and Information Security), sector specificity	Insufficient coverage of SMEs by cyber education programmes; gap between sectors
Lithuania	Medium	Coordination at the level of the Ministry of Defence, digital services	Moderate coverage of monitoring technologies; uneven regional implementation
Croatia	Medium	National centre under the Ministry of Interior, focus on public sector	No long-term strategy; fragmented policies
Albania	Lowest coherence	Updated law in 2024, establishment of a national	High number of incidents, low level of

		body	digital skills, limited institutional resources

[Source: developed by the authors based on the findings and data from Monitoring Report of the National Cyber Security Strategy 2020-2025 of Albania, Law of the Republic of Lithuania No. XII-1428 "On Cyber Security", Cybersecurity Strategy 2024-2030 "Cyber-Conscious Estonia", Law of the Republic of Croatia No. 14/2024-254 "On Cyber Security", and the Law of the Czech Republic No. 181/2014 "On Cyber Security", European Commission, Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)", Information Society Development Committee of Lithuania, Ministry of Economic Affairs and Communications of Estonia, Croatian National Bank Cybersecurity Centre, Digital Croatia Strategy 2032, National Cyber and Information Security Agency of the Czech Republic, World Bank]

A summary of the results of Table 8 shows significant differences between countries in the degree of development of cybersecurity systems. Estonia provides the most comprehensive model of protection, characterised by in-depth integration of digital technologies, centralised management through Information System Authority, and regular employee training programmes. However, the complexity of the digital infrastructure results in residual vulnerability to incidents. The Czech Republic demonstrates high regulatory stability and a clear functional division of responsibilities (National Agency for Cyber and Information Security) but faces insufficient support for small businesses in digital awareness. Lithuania and Croatia are implementing point institutional initiatives, particularly in multi-level authentication and monitoring, but lack strategic coordination. Albania, despite the adoption of updated legislation, continues to be the country with the lowest level of institutional readiness, which is reflected in the high number of incidents and poor digital literacy of its staff.

A critical analysis of the findings revealed a strong correlation between the level of digital maturity, the prevalence of information security technologies, and economic resilience to digital risks in the countries studied. Specifically, countries with a high human capital index (over 0.75) and a high coverage of employees with cyber awareness education programmes (over 70%), such as the Czech Republic and Estonia, experienced a reduction in productivity losses and a lower frequency of critical incidents. Meanwhile, in Croatia and Lithuania, the active implementation of multi-level authentication tools, event detection, and incident response systems, which reduced the vulnerability of small and medium-sized businesses, provided a positive trend.

The study findings also point to a close link between the regulatory and institutional framework and the economic capacity of states to counter information threats. It was found that countries with a prominent level of harmonisation of national legislation with the provisions of the European Union Directive of the European Parliament and of the Council No. 2022/2555 "On Measures for a High Common Level of Cybersecurity Across the Union, Amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive)" demonstrate a greater degree of integration of cybersecurity into general economic management. The centralised architecture of institutional responsibility for monitoring, responding to and preventing incidents is particularly effective, as seen in the examples of Estonia and the Czech Republic. At the same time, in countries with fragmented structures and insufficient resources (such as Albania), such functions are implemented to a limited extent.

An in-depth analysis of the economic impact of cyber incidents showed the existence of correlations between the frequency of digital attacks and key indicators of economic activity of enterprises. The econometric models built confirmed a statistically significant relationship between the level of digital security and indicators of productivity, turnover, and solvency. Countries with greater values of the e-Government Development Index and the Global Cybersecurity Index suffered lower economic losses, which indicates the effectiveness of institutional and technical cooperation as a foundation for economic resilience.

Apart from regulatory and institutional factors, the level of technical infrastructure and the quality of human capital play a special role. The study found that countries with active implementation of cloud technologies, Security Information and Event Management, and Endpoint Detection and Response systems, as well as large-scale digital education programmes, demonstrate higher e-commerce and the share of digital products in GDP. At the same time, the imbalance in the development of digital skills of the population and the limited coverage of educational initiatives continue to be the vulnerabilities that require strategic intervention by the public administration and the private sector.

4. Discussion

The findings obtained showed that there are significant differences in approaches to digital security across countries, which are conditioned by differences in the level of development of the regulatory and institutional environment, digital infrastructure, and human capital. The identified imbalances in the effectiveness of cybersecurity policies demonstrate the complex nature of the relationship between technological readiness and economic resilience to information threats. In this context, striking a balance between technical tools, institutional support, and the development of digital competencies of personnel is of particular relevance. In countries with a prominent level of digital integration, solutions based on systems for monitoring security events and detecting and responding to threats on endpoints were more often implemented, which helped to reduce the sensitivity to incidents and optimise response times[30]. This aspect was highlighted by Saeed et al.[31], proving that strategic adaptation to digital risks is a critical condition for the continuity of business processes, especially in highly dynamic sectors. It was found that in the context of digital maturity, the effectiveness of cyber defence measures is largely determined not only by the availability of technological solutions, but also by the level of corporate readiness for risk management, including established protocols, security policies and internal communication.

The empirical analysis also found that the degree of regulatory readiness of countries determines the scenarios for the use of state mechanisms in the field of digital security. Differences in legislative approaches substantially affect the adaptability of infrastructure to external threats, which was confirmed by Kulugh et al.[32], who presented a model for assessing the cyber resilience maturity of critical national information systems. According to the analysis, countries with fragmented legislative frameworks demonstrated lower efficiency of security measures, which is fully consistent with the barriers identified within the countries under

30 O. JOSEPH and I. AVIV, *Quantum-secure coherent optical networking for advanced infrastructures in Industry 4.0*, in *Information*, 2025, 16(7), p. 609.

31 S. SAEED, S.A. ALTAMIMI, N.A. ALKAYYAL, E. ALSHEHRI and D.A. ALABBAD, *Digital transformation and cybersecurity challenges…*, in *Sensors*, 2023, 23(15), p. 6666.

32 V.E. KULUGH, U.M. MBANASO and G. CHUKWUDEBE, *Cybersecurity resilience maturity assessment model…*, in *SN Computer Science*, 2022, 3(3), p. 217.

study.

Special attention was paid to the role of human capital in enhancing cyber resilience. Interpretation of the digital literacy index and digital skills data revealed a strong link between the level of investment in digital skills development and a reduction in the frequency of large-scale cyber incidents[33,34]. The findings were consistent with the study by Garcia-Perez et al.[35], who proved that effective staff training is a key factor in maintaining the functional stability of organisations during attacks on digital infrastructure. The findings showed that continuous professional development of employees, particularly in the form of internal trainings and certifications, formed an internal reserve of resilience to threats.

Furthermore, a direct correlation was established between the level of digital maturity of enterprises and the efficiency of e-commerce. In countries where digital integration was systemic, the share of e-commerce in the structure of GDP exceeded the European average, indicating a positive impact of digital practices on economic activity[36,37]. This position was confirmed by Robertson et al.[38], who noted that organisations with a strong level of digital maturity demonstrated greater adaptability to crisis challenges, particularly in the context of the COVID-19 pandemic. Thus, the strategic digitalisation of business processes is not only a means of increasing competitiveness, but also a tool for the long-term stabilisation of economic systems.

---

33 N. SMAILOV, R. KADYROVA, K. ABDULINA, F. URALOVA, N. KUBANOVA and A. SABIBOLDA, *Application of facial recognition technologies for enhancing control in information security systems*, in *Informatyka, Automatyka, Pomiary w Gospodarce i Ochronie Srodowiska*, 2025, 15(3), pp. 55–58.

34 V. SALMANOV and N. MAHMUDOV, *Existence of the solution of a discrete optimal control problem for linear concentrated systems with lions special quality test*, in *2012 4th International Conference Problems of Cybernetics and Informatics, Proceedings*, Baku, 2012, pp. 1–4.

35 A. GARCIA-PEREZ, J.G. CEGARRA-NAVARRO, M.P. SALLOS, E. MARTINEZ-CARO and A. CHINNASWAMY, *Resilience in healthcare systems: Cyber security and digital transformation*, in *Technovation*, 2023, 121, p. 102583.

36 N. DOLZHENKO, I. ASSILBEKOVA, Z. KONAKBAY, O. GARMASH and G. MURATBEKOVA, *Organization of transport services and transport process safety*, in *Periodica Polytechnica Transportation Engineering*, 2025, 53(3), pp. 277–291.

37 S. STEFANOV, D. GEORGIEVA and J. VASILEV, *Issues in the disclosure of financial information by multinational enterprises*, in *TEM Journal*, 2022, 11(1), pp. 5–12.

38 J. ROBERTSON, E. BOTHA, B. WALKER, R. WORDSWORTH and M. BALZAROVA, *Fortune favours the digitally mature…*, in *International Journal of Retail & Distribution Management*, 2022, 50(8/9), pp. 1182–1204.

The study analysed the relationship between sectoral digitalisation programmes and the ability of SMEs to adapt zero-trust architecture models. The findings showed that the success of such implementation largely depended not only on technical training, but also on the level of marketing adaptability and digital competence. The generalisations presented in the systematic review by Hokmabadi et al.[39] confirmed that the combination of digital skills and marketing capabilities is a key factor in the adaptation of small businesses to new digital realities. This provision is consistent with the findings of the present study, which revealed a high dependence of the effectiveness of the implementation of digital security protocols on the multidisciplinary maturity of enterprises.

The analysis of the model of interdependence between the degree of digital transformation and the organisational structure of cyber defence systems confirmed the value of systematic management of security processes. Lampe[40] presented a conceptual model of the Circular Interaction Model, which offered a step-by-step reverse adjustment of risks based on the interaction of technical and managerial levels. The application of this approach allows achieving a prominent degree of integration of security elements in the context of dynamic digital modernisation. The relevance of this approach was confirmed in the present study, which recorded the dependence of the effectiveness of incident response on the level of coordination of security policies at the cross-functional level.

The study found that the lack of clearly defined risk management strategies and weak institutional responsibility between departments negatively affected the effectiveness of response measures. This aspect was revealed by Nowicka et al.[41], who identified barriers to security management in the context of digital transformation, specifically, the fragmentation of functional interaction. The researchers noted that reorganisation with a focus on transparency and accountability between departments reduces the average incident response time by 35-42%, which was consistent with the results of the current analysis.

39 H. HOKMABADI, S.M. REZVANI and C.A. DE MATOS, *Business resilience for small and medium enterprises and startups by digital transformation*…, in *Systems*, 2024, 12(6), p. 220.

40 G.S. LAMPE, *Critical success factors for integrating a circular interaction model for security processes in digital transformation*, in *Ecoforum Journal*, 2023, 12(2), p. 1.

41 J. NOWICKA, Z. CIEKANOWSKI, J. KUDINS and P.J. D□BROWSKI, *Managing organizational security in the era of digital transformation*, in *European Research Studies Journal*, 2024, 27(3), pp. 460–471.

The economic context of digital security revealed further aspects of the relationship between the institutional sensitivity of enterprises to risks and the effectiveness of digital adaptation[42]. Samoilenko et al.[43] emphasised that ensuring economic security in the context of digitalisation is possible only if technological, anti-crisis, and strategic tools are synergised. The findings obtained in the present study confirmed the relevance of this approach, particularly for medium-sized businesses, where the level of digital readiness is often combined with limited resources.

The use of Information Security Management Systems proved to be critical to reducing the vulnerability of enterprises in high-risk industries[44]. Jonathan et al.[45] empirically proved that the implementation of ISO/IEC 27001 standards ensures the integration of IT infrastructure and reduces the number of critical vulnerabilities by 27%. The analysis confirmed the effectiveness of such systems, especially in countries with a unified regulatory framework for cybersecurity.

The issue of the human factor continues to be a significant barrier to cyber resilience, especially in organisations in the early stages of digital transformation[46,47]. Stewart[48] noted that over 42% of information security breaches were caused by human error or insufficient staff training. The data obtained in the present study confirmed the existence of a direct correlation between the covera-

---

42 M. KNAPIK, *Analysis of water leaks and savings strategies in commercial buildings and the impact of LEED certification on water system operating cost*, in *Zeszyty Naukowe SGSP*, 2025, 1(95), pp. 41–58.

43 Y. SAMOILENKO, I. BRITCHENKO, I. LEVCHENKO, P. LOSONCZI, O. BILICHENKO and O. BODNAR, *Economic security of the enterprise…*, in *Economic Affairs*, 2022, 67(4), pp. 619–629.

44 E. DAHAN, I. AVIV and M. KIPERBERG, *Trust domain extensions guest fuzzing framework for security vulnerability detection*, in *Mathematics*, 2025, 13(11), p. 1879.

45 G.M. JONATHAN, E. PERJONS and L. RUSU, *Untangling the link between digital transformation and information security management*, in *Procedia Computer Science*, 2024, 239, pp. 575–582.

46 D. PAVLOVA, T. DOVRAMADJIEV, D. DASKALOV, N. MIRCHEV, I. PEEV, J. RADEVA, R. DIMOVA, K. KAVALDZHIEVA, B. MRUGALSKA, G. SZABO and A. KANDIOGLOU, *3D design of a dental crown with artificial intelligence based in cloud space*, in *Lecture Notes in Networks and Systems*, 2024, 817, pp. 437–445.

47 N. KIKTEV, O. VASYLENKO, I. HORETSKA, A. PANCHENKO, S. SLOBODIAN, M. KUBOŃ, Z. SKIBKO and T. HUTSOL, *Smart solutions in agricultural robotics*, in *Agricultural Engineering*, 2025, 29(1), pp. 157–186.

48 H. STEWART, *Digital transformation security challenges*, in *Journal of Computer Information Systems*, 2023, 63(4), pp. 919–936.

ge of employees with cybersecurity programmes and a decrease in the frequency of incidents, which is consistent with the conclusions set out in the cited study.

The analysis of the study findings revealed that the systemic problem of a shortage of digital skills in the field of information security significantly limited the resilience of organisations to the growing threats of the digital environment. It was found that even in countries with high levels of institutional maturity, there was significant variation in the level of digital training of staff, which complicated the unification of response strategies. This conclusion correlates with the results of a systematic review by Ruoslahti et al.[49], who highlighted the chronic mismatch between academic training programmes and practical market requirements for cyber skills. Within the framework of this study, this problem was manifested in the specific features of the HR policy of small and medium-sized businesses, which, due to a lack of internal expertise, could not provide effective counteraction to threats even with basic technological tools.

An analysis of the digital architecture of organisational security showed that the functioning of sustainable partnership networks plays a key role in minimising the consequences of cyber incidents, especially in conditions of limited institutional support. Trim and Lee[50] proved that the global partnership model, which integrates technical solutions, political support, and inter-organisational interaction, is an effective mechanism for countering large-scale attacks. The study confirmed the relevance of this concept, demonstrating that in countries with an average level of regulatory readiness, partnership mechanisms made it possible to compensate for the fragmentation of the legislative field and insufficient resources.

The key factor in improving the effectiveness of cyber defence at enterprises with a developed digital infrastructure was the presence of strategic leadership in the field of information security[51,52]. Al-Kumaim and Alshamsi[53] found that the active position of leaders in implementing cybersecurity policies reduced risks

49 H. RUOSLAHTI, J. COBURN, A. TRENT and I. TIKANMAKI, *Cyber skills gaps: A systematic review…*, in *Connections: The Quarterly Journal*, 2021, 20(2), pp. 33–45.

50 P.R. TRIM and Y.I. LEE, *The global cyber security model…*, in *Big Data and Cognitive Computing*, 2021, 5(3), p. 32.

51 S. PORKODI, *The effectiveness of agile leadership in practice: A comprehensive meta-analysis of empirical studies on organizational outcomes*, in *Journal of Entrepreneurship Management and Innovation*, 2024, 20(2), pp. 117–138.

in critical sectors, including the financial sector. The findings showed that in countries with a prominent level of digital maturity, where cyber risk management functions are clearly institutionalised, the effectiveness of incident response increased and the average response time to a breach decreased.

In the context of escalating cyber threats, adaptive countermeasures that combine proactive forecasting and reactive response mechanisms became particularly significant. Safitra et al.[54] proposed a conceptual framework that combined preventive, adaptive, and reactive tools within a single digital security architecture. An analysis of the strategic documents of the countries covered by the study revealed analogous approaches to digital policy formation, particularly in terms of implementing mechanisms for multi-level interaction between the state, corporate, and technical levels.

The development of a sustainable cybersecurity culture was viewed as one of the fundamental areas of ensuring the digital resilience of organisations in the face of increasing information flows[55]. Aksoy[56] provided statistical evidence that systematic staff training, development of incident protocols, and regular internal training directly correlated with the level of prevention of both external and internal threats. The study found that these measures were particularly relevant for small businesses, which typically have limited resources to implement complex technical systems but can compensate for this by paying closer attention to human capital.

Within the framework of the assessment of SMEs' readiness to implement digital security protocols, the study analysed an application guide developed by

---

52 S. PORKODI and A. M. RAMAN, *Success of cloud computing adoption over an era in human resource management systems: A comprehensive meta-analytic literature review*, in *Management Review Quarterly*, 2025, 75(2), pp. 1041–1075.

53 N.H. AL-KUMAIM and S.K. ALSHAMSI, *Determinants of cyberattack prevention in UAE financial organizations: Assessing the mediating role of cybersecurity leadership*, in *Applied Sciences*, 2023, 13(10), p. 5839.

54 M.F. SAFITRA, M. LUBIS and H. FAKHRURROJA, *Counterattacking cyber threats: A framework…*, in *Sustainability*, 2023, 15(18), p. 13369.

55 V.A. KRASNOBAYEV, S.A. KOSHMAN and M.A. MAVRINA, *A method for increasing the reliability of verification of data represented in a residue number system*, in *Cybernetics and Systems Analysis*, 2014, 50(6), pp. 969–976.

56 C. AKSOY, *Building a cyber security culture for resilient organizations against cyber attacks*, in *İşletme Ekonomi ve Yönetim Araştırmaları Dergisi*, 2024, 7(1), pp. 96–110.

Papathanasiou et al.[57], which sets out recommendations for adapting security infrastructure in a low-finance environment. The study confirmed that the lack of clearly structured procedures and regulatory uncertainty continue to be critical barriers for SMEs in the context of increased vulnerability to external attacks. Of particular relevance is the creation of sectoral programmes to support small businesses in cyber defence, which include both technological solutions and training and advisory mechanisms adapted to the specifics of the business environment[58].

Particular attention was paid to the impact of digital integration on the efficiency of business structures in transforming economies. The findings of the study were consistent with those of Alog et al.[59], who proved that digital integration was one of the key drivers of the operational sustainability of small enterprises, especially in conditions of limited access to capital and technological resources. In their analysis, analogous trends were recorded in Albania and Croatia, where digital integration was accompanied by an increase in the share of e-commerce in the GDP.

Al-Dosari and Fetais[60] conducted a meta-analysis of risk management and information security systems used by SMEs. The researchers found that the effectiveness of the use of the relevant systems largely depended on the availability of comprehensive risk management strategies adapted to the limited resources of small enterprises. The present study confirmed the relevance of this model, especially in the cases of Estonia and the Czech Republic, where enterprises implemented adaptive digital security frameworks.

The issue of structural barriers to digital transformation in SMEs was also confirmed by Rupeika-Apoga and Petrovska[61], who identified a lack of digital

57 A. PAPATHANASIOU, G. LIONTOS, A. KATSOURAS, V. LIAGKOU and E. GLAVAS, *Cybersecurity guide for SMEs…*, in *Journal of Information Security*, 2024, 16(1).

58 A. SADENOVA, O. DENISSOVA, M. KOZLOVA, S. RAKHIMOVA, A. GOLA and S. SUIEUBAYEVA, *Structural equation modeling (SEM) in jamovi: An example of analyzing the impact of factors on enterprise innovation activity*, in *Applied Computer Science*, 2025, 21(1), pp. 97–110.

59 K. ALOG, K. ATIYA, R. SENTANI and M. ALKHATTALI, *Impact of digital integration on the small and medium-sized enterprises in Arab countries*, in *Afro-Asian Journal of Scientific Research*, 2025, 3(1), pp. 41–54.

60 K. AL-DOSARI and N. FETAIS, *Risk-management framework and information-security systems for small and medium enterprises (SMES): A meta-analysis approach*, in *Electronics*, 2023, 12(17), p. 3629.

61 R. RUPEIKA-APOGA and K. PETROVSKA, *Barriers to sustainable digital transformation…*, in *Sustainability*, 2022, 14(20), p. 13558.

competencies, insufficient funding, and fragmented regulatory support as key factors hindering transformation. Analogous limitations were recorded in Albania, suggesting the need for more support from the state and the expansion of digital adaptation programmes.

The value of digital integration for the participation of enterprises in global value chains was confirmed by Vu et al.[62]. In the present study, analogous dependencies were established on the example of Croatia and Lithuania, where the growth of digital maturity was directly correlated with the expansion of the presence of enterprises in foreign markets. This helped to consider digital transformation not only as a security tool but also as a platform for strategic growth.

The analysis revealed the existence of stable correlations between the level of digital maturity, the spread of cybersecurity tools, and the effectiveness of responding to digital risks, which is manifested in reducing the frequency of critical incidents and increasing the overall resilience of the information infrastructure of enterprises. The study established that the integration of technological solutions (specifically, Security Information and Event Management and Endpoint Detection and Response systems), regulatory instruments (national cybersecurity strategies, data protection regulations), and organisational practices (staff training, information security culture, inter-institutional interaction) creates preconditions for reducing economic losses and ensuring faster recovery from cyber incidents. The totality of the identified dependencies indicates the need for a holistic approach to the development of digital security, based on a systematic combination of technological modernisation, institutional development and improvement of human capital. The findings are conceptually consistent with modern scientific approaches to cyber risk management, particularly those that emphasise the significance of multi-level interaction in the digital environment.

5. Conclusions

The present study showed a prominent level of dependence between digital competences, institutional security measures, and the economic resilience of national economies to cyber threats. Based on a comparative analysis of five

62 N.H. VU, T.A. BUI, T.B. HOANG and H.M. PHAM, *Information technology adoption and integration into global value chains: Evidence from small-and…*, 2022.

countries – Albania, Croatia, Czech Republic, Estonia, and Lithuania – the study found that the highest digital maturity indicators were observed in Estonia (74.3 according to the Digital Economy and Society Index), the Czech Republic (69.2), and Lithuania (59.8), which correlated with a greater share of e-commerce in GDP – up to 9.8% in the Czech Republic and 8.6% in Estonia. The analysis of statistics also confirmed that prominent levels of corporate cyber awareness coverage (up to 81% in Estonia) were accompanied by lower productivity losses and better recovery dynamics after incidents. The greatest levels of Digital Skills Indicator were recorded in Estonia (72.1) and the Czech Republic (66.5), which coincided with the highest Human Capital Index values (0.79 and 0.75, respectively).

The results also revealed a strong correlation between the use of key security technologies (specifically, Security Information and Event Management and Endpoint Detection and Response) and the reduction of the negative impact of digital incidents on business operations. Countries with a high adoption rate of cloud services, multi-level authentication, and event monitoring systems (up to 76% in Estonia) had a significantly lower burden of incidents and financial losses on SMEs. For instance, while Albania recorded 157 incidents in the small business sector, the greatest average losses were incurred by Estonia (EUR 6.7 mn), indicating vulnerability at a high level of digital integration. At the same time, the Czech Republic demonstrated the lowest probability of losing solvency (0.33), which indicated the effectiveness of institutional measures and the implementation of certified solutions.

A generalisation of the e-Government Development Index and Global Cybersecurity Index indicators showed an increase in the regulatory readiness of all countries in 2024-2025, specifically in Albania from 0.694 to 0.712 according to the e-Government Development Index. The study found that countries with high human capital indices, such as the Czech Republic and Estonia, had advantages in reducing incidents, shorter business interruption periods, and stable macroeconomic indicators. This demonstrates the effectiveness of integrating digital education and corporate cyber culture into digital transformation policies. A limitation of the present study was the limited access to microdata on corporate cybersecurity practices and the lack of unified indicators to assess the effects of digital technologies on the financial and logistical stability of enterprises. Prospects for further research include modelling industry-oriented digital security structures and analysing mechanisms to stimulate cyber resilience in small businesses and the public sector.

DMYTRO BESEDA
PhD at the National Academy of the Security Service of Ukraine
besedadmytro24@gmail.com

PIOTR KUSZNIERUK
Full Doctor, Dean of the Faculty of Social Sciences, Warsaw Medical Academy
p.kusznieruk@outlook.com

GALYNA KARELOVA
Researcher at the Department of Law Enforcement and Anti-Corruption Activities,
Interregional Academy of Personnel Management
g-karelova@hotmail.com

MYKOLA POGREBYTSKYI
Full Doctor, Professor at the National Academy of the Security Service of Ukraine
m_pogrebytskyi@outlook.com

OLENA KRAVCHENKO
PhD, Researcher at the National Academy of the Security Service of Ukraine
olkravchenko@hotmail.com

COMPARATIVE STUDY OF GOVERNMENTAL APPROACHES TO THE SECURITY OF CRITICAL INFORMATION SYSTEMS

ABSTRACT

The aim of this study is to conduct a comparative analysis of national strategies and legal mechanisms for the protection of critical information systems in Poland, the Netherlands, Ukraine, and Canada. The research methodology is based on a theoretical analysis of national legislative acts, strategic documents, and international reports, which enabled the systematisation and comparison of institutional and regulatory approaches. It was found that despite common challenges – such as the rising number of cyber threats, reported by 72% of organisations, and the significant impact of incidents on 59% of companies – the examined countries have developed three distinct protection models. Poland and the Netherlands exemplify a European approach focused on the implementation of EU directives, which aim at harmonising requirements and creating a unified market for cybersecurity services. Ukraine's model, shaped by wartime conditions, is centred on military cyber defence and crisis response. Canada's model, where 51% of public cybersecurity investments are allocated at the

provincial level, is characterised by federal partnerships and decentralisation. The study confirmed that the key issues for all countries remain the shortage of qualified personnel – as 47% of EU operators do not plan to expand their staff – and a significant disparity in security maturity, with 90% of companies being technically unprepared to face modern threats. The practical significance of the study lies in its potential to inform the improvement of national cybersecurity policies through the synthesis of practices from different regulatory models, thereby contributing to the development of more resilient and adaptive national protection systems capable of effectively countering both state and non-state cyber threats.

Keywords: Cyber Resilience – State Regulation – Public-Private Partnership – Operators of Essential Services – Digital Transformation

1. Introduction

In the context of rapid digital transformation, the security of critical information systems has become a matter of fundamental importance for both national and international security. The proliferation of Internet of Things (IoT) technologies, smart cities, and cloud computing has profoundly reshaped not only economic processes but also the structure of public administration and the provision of public services. Alongside undeniable benefits, such as increased efficiency and improved quality of life, this technological evolution has generated new and unprecedented challenges. As Ma[1] noted, the vulnerability of a single element in a smart city system can jeopardise the entire urban ecosystem, from energy supply to transportation and healthcare. This dependency on information and communication technologies (ICT) has rendered cyberspace not only a domain for cybercrime but also an arena for geopolitical confrontation, where critical infrastructure becomes a primary target of malicious attacks.

1 C. Ma, *Smart city and cyber-security; technologies used, leading challenges and future recommendations*, in *Energy Reports*, 2021, Vol. 7, pp. 7999-8012.

The academic discourse on critical infrastructure cybersecurity is developing along several key directions. A significant body of research is devoted to the development and analysis of various security frameworks and standards. Taherdoost[2], in his review, noted the existence of a wide range of standards developed by different organisations, and emphasised that the main challenge for businesses and public institutions lies in choosing the most relevant approach. He highlighted that the absence of a universal standard creates a "paradox of choice", where organisations are forced to choose among dozens of models without clear criteria for evaluating their effectiveness in a specific context. Another approach, which stresses the importance of a holistic perspective, was proposed by Judijanto et al.[3], who argued that Enterprise Architecture plays a crucial role in reducing business risks. In their view, integrating cybersecurity into the overall organisational strategy – rather than treating it as a standalone technical function – enables synergies and ensures resilience across all levels of governance.

Beyond strategic frameworks, scholars also examine legal and organisational measures. This institutional dimension is further emphasised by Blyznyuk et al.[4] who demonstrated that the success of digital transformation projects in public administration depends critically on institutional capacity, governance practices, and risk management capabilities – factors equally relevant to the implementation of cybersecurity measures. Boranbayev et al.[5] studied mechanisms to ensure the reliability of public and critical information systems, emphasising the need for a combination of organisational (security policies, staff training), technical (protective tools), and legal (regulatory requirements, liability) instruments.

2 H. Taherdoost, *Understanding cybersecurity frameworks and information security standards – A review and comprehensive overview*, in *Electronics*, 2022, Vol. 11, No. 14, p. 2181.

3 L. Judijanto, D. Hindarto, S. I. Wahjono, Djunarto, Edge of enterprise architecture in addressing cyber security threats and business risks. *International Journal Software Engineering and Computer Science*, 2023, Vol. 3, No. 3, pp. 386-396.

4 A. Blyznyuk, I. Melnyk, Yu. Hrinchenko, A. Solomko, S. Lernyk, O. Moshak, *Formation the project maturity of public administration in implementation of digital transformation projects*, in *Journal of Information Technology Management*, 2021, Vol. 13, pp. 163-187.

5 A. Boranbayev, S. Boranbayev, A. Nurbekov, *Measures to ensure the reliability of the functioning of information systems in respect to state and critically important information systems*, in K. Arai, S. Kapoor, R. Bhatia (Eds.), *Intelligent Systems and Applications: Proceedings of the 2020 Intelligent Systems Conference,* Springer, 2021, pp. 139-152.

They argued that none of these elements is sufficient on its own, and the effectiveness of a system depends on their synergy and comprehensive implementation. Similar conclusions were reached by Bondarenko et al.[6], who analysed the legal mechanisms for information security in the broader context of digitalisation. The authors argued that a comprehensive system of legal norms, combined with effective enforcement and alignment with international standards, is essential for ensuring resilience and trust in digital governance. They highlighted that fragmented or outdated legislation may become a critical vulnerability, undermining even the most advanced technical safeguards.

An important aspect reflecting the European approach is the analysis of EU regulatory acts. The works of Chałubińska-Jentkiewicz and Nowikowska[7] and Mączka[8] provided a detailed examination of the provisions of the EU's Network and Information Security Directive, also known as NIS2. These authors considered the Directive not merely as a technical standard but as a comprehensive practical guide for implementing information security management systems, establishing clear requirements for risk assessment, incident reporting, and supply chain protection for operators of essential services. At the same time, scholarly literature places considerable emphasis on the human factor. As demonstrated in the systematic review by Khando et al.[9], purely technological measures are insufficient, as a significant number of incidents are attributed to human error or negligence. The authors concluded that investments in enhancing Information Security Awareness (ISA) among personnel are as crucial as investments in technical safeguards, since staff serve as the "first line of defence". Separate studies focus on the analysis of national cybersecurity systems, which is especially valuable for comparative analysis. For

6 S. Bondarenko, O. Makeieva, O. Usachenko, V. Veklych, T. Arifkhodzhaieva, S. Lernyk, *The legal mechanisms for information security in the context of digitalization*, in *Journal of Information Technology Management*, 2022, Vol. 14, pp. 25-58.

7 K. Chałubińska-Jentkiewicz, M. Nowikowska, *Entities involved in the policy of ensuring the security of networks and information systems in the light of the NIS2 Directive (part 2)*, in *Cybersecurity and Law*, 2024, Vol. 12. No. 2, pp. 5-24.

8 K. Mączka, *The NIS2 Directive as a guideline for implementing an information security management system in an organization,* in *Protection of People and Cultural Heritage*, 2024, Vol. 5, pp. 111-124.

9 K. Khando, S. Gao, S. M. Islam, A. Salman, *Enhancing employees information security awareness in private and public organisations: A systematic literature review*, in *Computers & security*, 2021, Vol. 106, article no. 102267.

example, Ojdana-Kościuszko[10] analysed the evolution and challenges of Poland's cybersecurity system, highlighting the difficulties in aligning national legislation with the dynamic requirements of the EU and the shortage of qualified personnel. Meanwhile, Chernysh et al.[11] examined Ukraine's critical infrastructure protection system, emphasising its unique development under conditions of continuous cyber aggression and the need to strengthen the military component of cyber defence.

Despite the considerable volume of research covering both general theoretical frameworks and narrowly specialised technical issues, a certain gap remains in the academic literature. There is a lack of comprehensive comparative legal analysis that systematically contrasts national approaches of countries with different legal traditions and geopolitical contexts (e.g., EU member states, a non-European federal state, and a country at war). Existing studies rarely combine dogmatic analysis of national legislation with reviews of international reports and academic literature to illustrate how national strategies respond to global technological and security trends. Thus, the issue of how differences in state governance and security environments influence the development of national models for the protection of critical information infrastructure remains insufficiently explored. The objective of this article is to conduct a comparative study of governmental approaches to securing critical information systems in order to identify commonalities and divergences in the legal and institutional models of Poland, the Netherlands, Ukraine, and Canada. To achieve this objective, the following tasks were defined: to analyse the legal and strategic documents of the selected countries; to compare their institutional mechanisms and approaches to risk management; and to align national models with key international standards and academic concepts in the field of cybersecurity.

10 M. Ojdana-Kościuszko, *Evolution and challenges of the Polish cybersecurity system*, in *On Security and Defence*, 2024, Vol. 10, No. 1, pp. 128-146.

11 R. Chernysh, M. Chekhovska, O. Stoliarenko, O. Lisovska, A. Lyseiuk, *Ensuring information security of critical infrastructure objects as a component to guarantee Ukraine's national security*, in *Amazonia Investiga*, 2023, Vol. 12, No. 67, pp. 87-95.

2. Materials and methods

This study was conducted during May-June 2025 and was of a theoretical and comparative-legal nature. For the purpose of carrying out the comparative analysis, four countries were selected: Poland, the Netherlands, Ukraine, and Canada. The selection of these jurisdictions was based on their substantial differences, which enabled the study to represent a diverse range of models for governmental cybersecurity governance. Specifically, Poland and the Netherlands were selected as representatives of the EU, allowing for an analysis of the implementation and national adaptation of common EU regulatory frameworks. Ukraine represents a unique case of a country developing its cybersecurity system in the context of full-scale warfare, rendering its experience valuable for assessing resilience and crisis management. Canada was included as an example of a large federal state with a common law tradition, enabling a comparison between its approach and continental European models, as well as an examination of the specificities of interaction between federal and provincial levels of government.

The empirical basis of the study included: supranational EU acts, notably Directive (EU) 2022/2555[12]; national legislation of Poland[13], the Netherlands[14], Ukraine[15], and Canada[16]. To contextualise and analyse international practices, analytical reports from leading organisations were used, including Accenture[17],

12 Directive (EU) 2022/2555 of the European Parliament and of the Council "On Measures for a High Common Level of Cybersecurity Across the Union, amending Regulation (EU) No. 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148" (NIS2 Directive), 2022. https://eur-lex.europa.eu/eli/dir/2022/2555/oj/eng

13 Act of Poland "On the National Cybersecurity System," 2018. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20180001560

14 Act of Netherland "On Network and Information Systems Security," 2018. https://www.digitaltrustcenter.nl/wet-beveiliging-netwerk-en-informatiesystemen-wbni

15 Law of Ukraine No. 45 "On the Basic Principles of Ensuring Cybersecurity of Ukraine," 2017. https://zakon.rada.gov.ua/laws/show/2163-19#Text; Cybersecurity strategy of Ukraine (2021-2025), 2021. https://www.rnbo.gov.ua/files/2021/STRATEGIYA%20KYBERBEZPEKI/proekt%20strategii_kyberbezpeki_Ukr.pdf

16 Telecommunications Act, 1993. https://laws.justice.gc.ca/eng/acts/t-3.4/; Bill C-26: An Act Respecting Cyber Security, amending the Telecommunications Act and making consequential amendments to other Acts, 2022. https://www.justice.gc.ca/eng/csj-sjc/pl/charter-charte/c26_1.html; Critical Cyber Systems Protection Act, 2025. https://www.publicsafety.gc.ca/cnt/trnsprnc/brfng-mtrls/prlmntry-bndrs/20250226-1/07-en.aspx; Canada's National Cyber Security Strategy, 2025. https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/ntnl-cbr-scrt-strtg-2025/index-en.aspx

17 Accenture, "State of cybersecurity resilience 2025," 2025. https://www.accenture.com/content/dam/accenture/final/accenture-com/document-3/State-of-

CompTIA[18], the Organisation for Economic Co-operation and Development (OECD)[19], and Ukrainian think tanks[20]. Selected cases and events were analysed based on information bulletins[21].

The methodological framework of the research comprised general scientific and specialised legal methods. The dogmatic (formal-legal) method was employed to analyse the content of normative legal acts, interpret legal norms, determine the powers of public authorities and obligations of critical infrastructure operators. The comparative-legal method was key in contrasting the legal systems of the selected countries and identifying similarities and differences in their approaches to cybersecurity regulation. The system-structural method enabled the examination of national cybersecurity systems as integrated complexes of interconnected elements (institutions, norms, functions) and facilitated the analysis of their internal coherence. Additionally, the legal-hermeneutic method was used to interpret the content of strategic documents and legal concepts, particularly the Dutch principle of the "duty of care" (zorgplicht).

Cybersecurity-report.pdf

18 CompTIA, "State of cybersecurity," 2025. https://www.comptia.org/en-us/resources/research/state-of-cybersecurity/

19 Organisation for Economic Co-operation and Development, "Government at a glance 2025," 2025. https://www.oecd.org/en/publications/government-at-a-glance-2025_0efd0bcd-en.html

20 Annual Analytical Review, 2024. https://www.rnbo.gov.ua/files/2024/NATIONAL_CYBER_SCC/20250109/Year in review_UKR_upd.pdf

21 Forbes Ukraine, "Cyberattack on Kyivstar will cost parent company Veon nearly $100 million," 2024. https://forbes.ua/news/kiberataka-na-kiivstar-obiydetsya-materinskiy-kompanii-veon-u-mayzhe-100-mln-18012024-18595; Ministry of Foreign Affairs of Ukraine, "One year of the Tallinn Mechanism: 200 million euros for the cybersecurity of Ukraine's civilian infrastructure," 2024. https://mfa.gov.ua/news/rik-roboti-tallinskogo-mehanizmu-200-miljoniv-yevro-dlya-kiberzahistu-civilnoyi-infrastrukturi-ukrayini; State Service of Special Communications and Information Protection of Ukraine, "Together in defending cyberspace: State Service of Special Communications, NCCC and ENISA signed a cooperation agreement," 2023. https://cip.gov.ua/ua/news/razom-na-zakhisti-kiberprostoru-derzhspeczv-yazku-nkck-ta-enisa-pidpisali-ugodu-pro-spivpracyu

3. Results

3.1. Legislative regulation and institutional framework for cybersecurity in the Republic of Poland

Poland's legal framework in the area of cybersecurity has been significantly shaped by pan-European initiatives, notably NIS2 Directive[22]. The foundational national document in this domain is the Act "On the National Cybersecurity System"[23]. This Act laid the foundation for the functioning of a comprehensive, multi-tiered system integrating state authorities, operators of essential services (operator zyusługklu czowych), and digital service providers in a joint effort to counter cyber threats. The necessity of such strict regulation stems from the global context: according to Accenture[24], 72% of organisations worldwide reported an increase in cyber threats, with 63% identifying the evolving threat landscape as their greatest challenge. A dogmatic analysis of the Act of Poland "On the National Cybersecurity System"[25] revealed that it is grounded in the principle of identifying and protecting entities whose operations are critical to the functioning of the state and society. Article 5 of the Act established clear criteria and procedures for identifying operators of essential services across sectors such as energy, transport, healthcare, banking, financial market infrastructure, and digital supply. The same article mandated competent authorities (sectoral ministries) to maintain registries of such operators, thus ensuring a systemic supervisory approach. Identified operators were assigned a range of specific obligations, detailed in Articles 8-10 of the Act "On the National Cybersecurity System"[26]. Article 8, in particular, required them to implement an adequate and proportionate information security management system covering both technical and organisational

22 Directive (EU) 2022/2555 of the European Parliament and of the Council "On Measures for a High Common Level of Cybersecurity Across the Union, amending Regulation (EU) No. 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148" (NIS2 Directive), 2022.

23 Act of Poland "On the National Cybersecurity System," 2018. https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20180001560

24 Accenture, "State of cybersecurity resilience 2025," 2025. https://www.accenture.com/content/dam/accenture/final/accenture-com/document-3/State-of-Cybersecurity-report.pdf

25 Act of Poland "On the National Cybersecurity System," 2018.

26 *Ibid.*

aspects. This includes the development and implementation of internal security policies, systematic risk assessments, the creation of business continuity plans, and incident management procedures.

A crucial element introduced in Article 9 was the obligation to conduct audits of information systems used in the provision of essential services at least once every two years[27]. This approach responds to global challenges, as evidenced by the CompTIA[28], which found that 59% of North American companies experienced moderate or significant impacts from cyber incidents over the past year. Article 10 of the Act "On the National Cybersecurity System"[29] imposed the obligation to report "serious incidents" (incident poważny) to the Computer Security Incident Response Team (CSIRT) within 24 hours of detection. This provision aims to establish a nationwide threat picture and enable rapid systemic responses, which is particularly relevant given that only 28% of organisations, according to Accenture[30], implement security measures at the initial stage of transformation initiatives, often resulting in reactive rather than proactive threat responses.

The institutional structure defined in Article 20 of the Act of Poland "On the National Cybersecurity System"[31] is three-tiered. It includes a Government Plenipotentiary for Cybersecurity (typically at the ministerial or deputy ministerial level responsible for digital affairs), who performs a coordinating function at the political level. The technical level is represented by three national-level CSIRTs, whose mandates are outlined in Article 26[32]. These include: CSIRT GOV, operating within the Internal Security Agency and responsible for government institutions; CSIRT MON, tasked with the defence sector; and CSIRT Scientific and Academic Computer Network (NASK), serving operators of essential and digital services as well as other entities. This differentiation enables a specialised approach, which is crucial given that, according to the Accenture (2025), 90% of companies lack sufficient maturity to counter modern threats, in-

27 *Ibid.*
28 CompTIA, "State of cybersecurity," 2025.
29 Act of Poland "On the National Cybersecurity System," 2018.
30 *Ibid.*
31 Accenture, "State of cybersecurity resilience 2025," 2025.
32 Act of Poland "On the National Cybersecurity System," 2018.

cluding AI-driven ones. The Act of Poland "On the National Cybersecurity System"[33] also established a robust system of oversight and accountability detailed in Chapter 7.

Competent authorities (sectoral ministries) were granted powers to conduct scheduled and unscheduled inspections of essential service operators. In the event of violations, Article 62 of the Act "On the National Cybersecurity System"[34] authorised them to impose financial penalties, which may amount to significant sums (up to PLN 200,000 for individual breaches, and up to PLN 1,000,000 in cases of repeated non-compliance). This creates an effective incentive mechanism to ensure compliance with legal requirements. The need for such financial incentives is corroborated by data from State of Cybersecurity[35], which indicates that 36% of companies consider budget constraints the primary barrier to improving cybersecurity, as well as findings from the European Union Agency for Cybersecurity (ENISA) Annual Analytical Review[36], which reported that in 2022, 47% of critical infrastructure operators in the EU did not plan to hire new cybersecurity professionals. At the same time, according to the OECD[37], Poland's overall score for ex post legislative evaluation remains low (1.5 out of 4), indicating potential challenges in assessing the effectiveness of the Act "On the National Cybersecurity System"[38] itself.

In conclusion, the analysis of the Polish approach illustrates the formation of a classical European model focused on harmonisation and alignment with EU norms. This model is characterised by a high degree of formalisation, a clear distribution of institutional competences, and the presence of effective mechanisms of financial liability for operators. Nevertheless, the identified low quality of ex post legislative evaluation suggests a potential gap between formal compliance and the actual effectiveness of the system, posing a systemic challenge for similar regulatory regimes.

---

33 *Ibid.*

34 *Ibid.*

35 CompTIA, "State of cybersecurity," 2025.

36 Annual Analytical Review, 2024.

37 Organisation for Economic Co-operation and Development, "Government at a glance 2025," 2025.

38 Act of Poland "On the National Cybersecurity System," 2018.

3.2. The Dutch approach to harmonising national legislation with EU cybersecurity norms

The Netherlands, as one of the most digitalised OECD countries, has demonstrated a mature and flexible approach to the implementation of EU cybersecurity directives. The cornerstone of national legislation is the Act "On Network and Information Systems Security"[39], which entered into force on 9 November 2018, transposing NIS2 Directive[40]. A doctrinal analysis of this law reveals that the Dutch model, unlike the more formalised Polish approach, is characterised by a high degree of integration of cybersecurity into the broader crisis management system, a strong emphasis on public-private partnership, and a focus on sectoral specialisation. This model is supported by high levels of governance effectiveness; according to the OECD[41], the Netherlands ranks among the top performers in terms of public sector management quality and consistently enjoys high levels of public trust in governmental institutions, thereby creating favourable conditions for the implementation of complex regulatory policies.

The Act of Netherland "On Network and Information Systems Security"[42], similarly to its Polish counterpart, defines in Articles 2 and 3 the categories of "essential service providers" and "digital service providers". However, unlike a fixed list, the Dutch legislator established framework criteria that allow the government to flexibly determine and update the list of entities through subordinate legislation. The key obligations of operators are articulated through two central legal concepts: the "duty of care" (zorgplicht) and the "duty to notify" (meldplicht). The principle of zorgplicht is less prescriptive than its Polish equivalent; it requires operators to take all "appropriate and proportionate technical and organisational measures" to manage risks and prevent incidents[43]. This encourages self-assessment of risks rather than mere compliance with formal requi-

39 Act of Netherland "On Network and Information Systems Security," 2018.

40 Directive (EU) 2022/2555 of the European Parliament and of the Council "On Measures for a High Common Level of Cybersecurity Across the Union, amending Regulation (EU) No. 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148" (NIS2 Directive), 2022.

41 Organisation for Economic Co-operation and Development, "Government at a glance 2025," 2025.

42 Act of Netherland "On Network and Information Systems Security," 2018.

43 *Ibid.*

rements, which is crucial in the context where, as noted by CompTIA[44], 44% of organisations face a wide variety of attack vectors. The meldplicht principle obliges operators to notify the National Cyber Security Centre (NCSC) and the relevant supervisory authority "without undue delay" of incidents that have "significant consequences" for service provision.

The institutional architecture of the Netherlands is centralised in coordination yet decentralised in supervision. The NCSC plays a pivotal role as a centre of expertise, information exchange, and national-scale incident response[45]. Meanwhile, supervisory functions (toezicht) are assigned to sectoral ministries and specialised regulators such as the Telecommunications Agency (Agentschap Telecom) for digital infrastructure or the Health and Youth Care Inspectorate (Inspectie Gezondheidszorgen Jeugd). This approach enables sector-specific risk consideration, a critical prerequisite for effective protection, as evidenced by the Annual Analytical Review[46], which highlights the increasing intensity of attacks on operational technologies (OT), requiring in-depth sectoral expertise. The NCSC actively cooperates with the private sector through the National Cyber Incident Response Forum (NIRF), exemplifying a successful public-private partnership model. The effectiveness of such collaboration is underscored in the Accenture[47], which states that organisations in the "Reinvention-Ready Zone" exhibit significantly higher levels of security integration into business strategy.

A distinctive feature of the Dutch approach is its strong focus on data protection, which gained particular relevance following the leak of personal data of all Dutch police officers in September 2023[48]. This incident prompted a national reassessment of security policies and confirmed the Accenture (2025) regarding the existence of a "Security Maturity Gap", as 77% of organisations reportedly lack basic data and artificial intelligence (AI) security practices. In response, the

---

44 CompTIA, "State of cybersecurity," 2025.

45 M. GULIYEV, H. MURADOVA, L. HAJIYEVA, L. HUSEYNOVA, *Comparative analysis of marketing strategies of global corporations in industrial and innovation clusters in Europe and China*, in *Strategic Change*, 2025, Vol. 34, No. 5, pp. 689–701; S. PORKODI, A. M. RAMAN, *Success of cloud computing adoption over an era in human resource management systems: A comprehensive meta-analytic literature review*, in *Management Review Quarterly*, 2025, Vol. 75, No. 2, pp. 1041–1075.

46 Annual Analytical Review, 2024.

47 Accenture, "State of cybersecurity resilience 2025," 2025.

48 Annual Analytical Review, 2024.

Dutch government strengthened personal data protection requirements and access control mechanisms in public information systems. Furthermore, the reality of threats was corroborated by the Dutch military intelligence report, which in 2024 uncovered a large-scale cyberespionage campaign conducted by China. This campaign had remained undetected for an extended period and enabled attackers to penetrate the country's military networks[49]. This incident demonstrates that even the most technologically advanced states remain vulnerable to sophisticated state-sponsored cyberattacks, justifying the need for continuous enhancement of national cybersecurity systems.

3.3. Ukraine's experience in developing a cybersecurity system under martial law

Ukraine represents a unique case of a state building its national cybersecurity system amidst a protracted cyberwar that began in 2014 and escalated into full-scale conflict on 24 February 2022[50]. This context has profoundly influenced legislative priorities, regulatory frameworks, and institutional architecture, compelling the state to transition rapidly from theoretical frameworks to practical measures within highly compressed timeframes. Foundational documents in this domain include the Law of Ukraine "On the Basic Principles of Ensuring Cybersecurity of Ukraine"[51] and the Cybersecurity Strategy of Ukraine (2021-2025)[52]. Developed prior to the full-scale invasion, these instruments laid the groundwork that proved critical to organising resistance in cyberspace.

A doctrinal analysis of the Law "On the Basic Principles of Ensuring Cybersecurity of Ukraine"[53] shows that it established key terminology and institutional parameters. Article 1 defines terms such as "cybersecurity", "cyberattack", "cyber incident", and "critical information infrastructure objects", thereby creating a unified terminological foundation. The institutional system outlined in Articles 8-12 is multi-actor. The National Coordination Centre for Cyberse-

49 *Ibid.*

50 *Ibid.*

51 Law of Ukraine No. 45 "On the Basic Principles of Ensuring Cybersecurity of Ukraine," 2017.

52 Cybersecurity strategy of Ukraine (2021-2025), 2021.

53 Law of Ukraine No. 45 "On the Basic Principles of Ensuring Cybersecurity of Ukraine," 2017.

curity (NCCC) under the National Security and Defence Council of Ukraine plays the coordinating role. Pursuant to Article 11 of the Law, the NCCC analyses the cybersecurity situation and coordinates the activities of security and defence sector entities. The State Service of Special Communications and Information Protection of Ukraine (SSSCIP)[54], under Article 9, is the principal body responsible for cyber protection of state information resources and critical infrastructure and operates the national computer emergency response team Computer Emergency Response Team of Ukraine (CERT-UA). The Security Service of Ukraine (SSU), according to Article 10, focuses on counterintelligence, combating cyberterrorism, and cyberespionage.

The Cybersecurity Strategy of Ukraine[55], adopted six months before the full-scale invasion, has proven highly prescient and is based on three core principles: deterrence, cyber resilience, and cooperation. Under wartime conditions, the priority of "deterrence" has gained exceptional importance. Strategic Goal S.1 "Effective Cyber Defence" directly envisaged the creation of a separate branch of the Armed Forces of Ukraine–the Cyber Defence Forces – reflecting the global trend of cyber domain militarisation[56]. This goal was realised in direct response to the Russian Federation's aggressive actions. Moreover, Goal S.2 aims to strengthen capabilities to counter intelligence and subversive activities, which remains a daily reality for Ukraine. The Annual Analytical Review[57] notes that attacks on military personnel aimed at stealing intelligence remain a strategic objective of the adversary.

The large-scale cyberattack on the national mobile operator Kyivstar in December 2023 was a major incident that starkly demonstrated the vulnerabilities of critical infrastructure[58]. The attack caused a network outage lasting several days, with full-service restoration taking several weeks. According to the SSU, Russian hackers had planned a second wave of attacks intended to inflict even

54 State Service of Special Communications and Information Protection of Ukraine, "Together in defending cyberspace: State Service of Special Communications, NCCC and ENISA signed a cooperation agreement," 2023.

55 Cybersecurity strategy of Ukraine (2021-2025), 2021.

56 *Ibid.*

57 Annual Analytical Review, 2024.

58 Forbes Ukraine, "Cyberattack on Kyivstar will cost parent company Veon nearly $100 million," 2024.

greater damage[59]. This incident confirmed that even with significant international support, critical infrastructure remains at exceptionally high risk. In January 2024, new powerful attacks targeted the banking sector and one of Ukraine's largest data centres, causing temporary disruptions to numerous public services. According to CERT-UA, 2024 saw increased adversary interest in Ukraine's telecommunications sector, alongside widespread use of phishing campaigns via messaging apps disguised as military-related documents[60].

In response to these threats, Ukraine is actively enhancing its own capabilities in line with Objective C.1 "Strengthening national cyber readiness and cybersecurity"[61]. According to the Annual Analytical Review[62], the National Cybersecurity Coordination Centre (NCCC) conducted the HackWave and INCIDENT RESPONSE DAYS 2.0 cybersecurity competitions, as well as the first sectoral exercises for the transport sector – CIREX.CoBridge. To raise public awareness, the Ministry of Digital Transformation launched the "Cybergram" test, and the SSSCIP held a nationwide online cybersecurity lesson attended by over 20,000 viewers. The first national cyber range, Cyber Range UA, aimed at the practical training of specialists, was presented at the National Aviation University[63]. Ukraine's experience has demonstrated the critical importance of international cooperation, reflected in Objective B.3 "Pragmatic international cooperation" of the Cybersecurity Strategy of Ukraine[64].

In December 2023, Estonia and nine other countries launched the Tallinn Mechanism to systematise civilian cyber assistance to Ukraine[65]. In November 2023, a Cooperation Agreement was signed with ENISA[66], marking the first such document between the European agency and a non-EU country. Additionally, Denmark announced the provision of USD 13 million in cyber assistance, and

59 Annual Analytical Review, 2024.

60 Annual Analytical Review, 2024.

61 Cybersecurity strategy of Ukraine (2021-2025), 2021.

62 Annual Analytical Review, 2024.

63 *Ibid.*

64 Cybersecurity strategy of Ukraine (2021-2025), 2021.

65 Ministry of Foreign Affairs of Ukraine, "One year of the Tallinn Mechanism: 200 million euros for the cybersecurity of Ukraine's civilian infrastructure," 2024.

66 State Service of Special Communications and Information Protection of Ukraine, "Together in defending cyberspace: State Service of Special Communications, NCCC and ENISA signed a cooperation agreement," 2023.

the United States Agency for International Development (USAID) is assisting in enhancing cybersecurity in the energy sector[67]. The active involvement of Ukrainian law enforcement in international operations – particularly in dismantling the LockBit and IcedID infrastructures under Operation Endgame – demonstrates their high level of competence. In June 2024, it was reported that prosecutors of the International Criminal Court (ICC) were investigating Russian cyberattacks on Ukraine's civilian infrastructure as war crimes, while the SSU is gathering evidence concerning the attack on Kyivstar for submission to the ICC[68]. This establishes an important precedent for accountability for cybercrimes at the international level.

3.4. Strategic priorities and federal – Provincial interaction in Canada's cybersecurity system

Canada's model for protecting critical information infrastructure differs significantly from European approaches due to its federal structure and the absence of a supranational regulator. The system is based on Canada's National Cyber Security Strategy[69], updated in 2024, and new legislative instruments, in particular Bill C-26[70], which amended the Telecommunications Act[71] and introduced the Critical Cyber Systems Protection Act (CCSPA)[72]. An analysis of these documents reveals that Canada's key priorities are resilience, innovation, and collaboration, implemented through a multi-level governance model. The OECD[73] noted that in federal states like Canada, a significant share of regulatory and service delivery responsibilities lies with subnational entities. Data from 2023 indicate that 51% of public investment in Canada occurred at the provincial level, compared to only 11% at the federal level.

67 Annual Analytical Review, 2024.

68 *Ibid*.

69 Canada's National Cyber Security Strategy, 2025.

70 Bill C-26: An Act Respecting Cyber Security, amending the Telecommunications Act and making consequential amendments to other Acts, 2022.

71 Telecommunications Act, 1993.

72 Critical Cyber Systems Protection Act, 2025.

73 Organisation for Economic Co-operation and Development, "Government at a glance 2025," 2025.

This division of powers is also reflected in the cybersecurity system[74]. While the federal Canadian Centre for Cyber Security (CCCS) functions as the central authority on cyber protection, substantial responsibility for practical policy implementation rests with provincial governments and critical infrastructure operators. The national strategy explicitly emphasises the need for close coordination across all levels of government, aligning with the findings of the CompTIA report[75], which showed that 39% of companies identified a disconnect between cybersecurity policy and business operations. The new CCSPA[76] targets federally regulated operators in key sectors – telecommunications, energy, transport, and finance – and mandates the development and implementation of comprehensive cybersecurity programmes. These programmes must include risk detection and management measures, particularly those related to supply chains and third parties. Operators are also obliged to report cyber incidents immediately to the CCCS. A significant innovation of the Act is the granting of authority to the Government of Canada to issue binding cybersecurity directions for the protection of critical systems in the event of significant threats[77].

The Canadian strategy identifies ten critical infrastructure sectors and places a strong emphasis on innovation and workforce development, responding to the global shortage of qualified professionals. According to the Accenture report[78], 83% of executives consider the talent gap the main obstacle to maintaining adequate security levels. To address this, the Canadian strategy includes investments in educational programmes and initiatives to train the next generation of professionals. Another vital element is the "Cyber Secure Canada" programme – a voluntary certification for small and medium-sized enterprises (SMEs) to help implement baseline cybersecurity standards. This initiative aims to streng-

---

74 A. DALKE, S. SVYATOV, E. RUZIYEVA, *Criteria for identification and regulation of systemically important banks*, in *Accounting, Economics and Law: A Convivium*, 2025. https://doi.org/10.1515/ael-2024-0070

75 CompTIA, "State of cybersecurity," 2025.

76 Critical Cyber Systems Protection Act, 2025.

77 A. BARLYBAYEV, A. TURGINBAYEVA, *Development and implementation of an advanced fuzzy expert system for the assessment of information security risks*, in *Journal of Computational and Cognitive Engineering*, 2025, Vol. 4, No. 4, pp. 570–580; A. BARLYBAYEV, A. SHARIPBAY, G. Shakhmetova, A. ZHUMADILLAYEVA, *Development of a flexible information security risk model using machine learning methods and ontologies*, in *Applied Sciences*, 2024, Vol. 14, No. 21, p. 9858.

78 Accenture, "State of cybersecurity resilience 2025," 2025.

then supply chain resilience, as reports indicate that SMEs often represent a weak link in the cybersecurity ecosystem[79]. Canada's participation in international alliances, notably the "Five Eyes," ensures access to intelligence and best practices[80]. Joint guidance on the Volt Typhoon threat actor, issued together with the United States, Australia, New Zealand, and the United Kingdom, serves as an example of such collaboration[81].

Thus, the analysis of Canada's approach reveals the emergence of a unique federal model that significantly differs from the unitary systems of Europe. It is characterised by the combination of three key elements: clear legislative regulation at the federal level for critical sectors; encouragement of voluntary initiatives to enhance private sector resilience; and the prioritisation of international cooperation within intelligence-sharing alliances. This comprehensive approach reflects Canada's commitment to balancing centralised strategic leadership with flexibility and broad stakeholder engagement.

3.5. Comparative analysis and summary of findings

The conducted study of national approaches to the protection of critical information infrastructure in Poland, the Netherlands, Ukraine, and Canada revealed both common trends – driven by the global nature of cyber threats – and significant differences, which reflect the unique legal, political, and security contexts of each country. A shared feature among all jurisdictions examined is the recognition of cybersecurity of critical infrastructure as a key national security priority and the shift towards proactive risk management, rather than mere incident response[82]. This shift is confirmed by report data indicating an exponential increase in the number and complexity of cyberattacks, prompting governments

79 *Ibid*.

80 Annual Analytical Review, 2024.

81 Ibid; T. Feng, H. Pei, Z. Jin, X. Wu, *A survey and perspective on electronic design automation tools for ensuring SoC security*, in *19th International SoC Design Conference*, Institute of Electrical and Electronics Engineers, 2022, pp. 215-216; F. A. F. Alazzam, H. J. M. Shakhatreh, Z. I. Y. Gharaibeh, I. Didiuk, O. Sylkin, *Developing an information model for e-commerce platforms: A study on modern socio-economic systems in the context of global digitalization and legal compliance*, in *Information Systems Engineering*, 2023, Vol. 28, No. 4, pp. 969-974.

82 B. R. REXHEPI, A. KUMAR, M. S. GOWTHAM, R. RAJALAKSHMI, M. D. PAIKARAY, P. K. ADHIKARI, *A secured intrusion detection system integrated with the conditional random field for the MANET network*, in *International Journal of Intelligent Systems and Applications in Engineering*, 2023, Vol. 11, No. 3s, pp. 14–21.

to strengthen regulatory requirements[83]. Differences in approaches, shaped by national priorities and legal traditions, become particularly evident in the analysis of strategic frameworks and practical mechanisms for policy implementation (Table 1).

Table 1. Comparison of strategic approaches and implementation mechanisms

Approach	Poland	Netherlands	Ukraine	Canada
Primary focus of the strategy	Compliance with EU norms, building a national system based on the NIS2 model	Proactive risk management, public-private partnerships, data protection	Cyber defence, deterring aggressors, resilience in wartime conditions	Critical infrastructure resilience, innovation, federal-provincial collaboration
Role of the state	Regulator and supervisory authority	Coordinator and partner	Commander and defender	Facilitator and strategic partner
Public-private partnership model	Mandatory reporting and compliance through CSIRT NASK	Joint platforms for information exchange (NCSC, NIRF)	Engagement of cyber volunteers, contractual basis for IT Army	Voluntary certification ("Cyber Secure"), joint working groups
Approach to cyber incidents	Centralised reporting via specialised CSIRTs	Centralised reporting and coordination through NCSC	Multi-level response (military, law enforcement, technical)	Decentralised reporting with coordination via CCCS
Priorities in international cooperation	Participation in EU programmes (ENISA, Permanent Structured Cooperation – PESCO) and North Atlantic Treaty Organisation (NATO)	Active role in ENISA, Europol, bilateral agreements	Cooperation with NATO, EU (ENISA), US, Tallinn Mechanism	Participation in the Five Eyes alliance, bilateral agreements with the US
Approach	Adaptation to NIS2	Development	Training	Youth engagement

83 Accenture, "State of cybersecurity resilience 2025," 2025; CompTIA, "State of cybersecurity," 2025.

to workforce developme nt	requirements, upskilling civil servants	of specialised skills, training programmes for public officials	military cyber specialists, development of cyber ranges	programmes, addressing workforce shortages in the public sector

[Source: compiled by the authors based on Annual Analytical Review[84]; Accenture[85]; CompTIA[86]]

A comparative legal analysis has identified three distinct models of state regulation. Poland and the Netherlands represent a European harmonised model, grounded in the implementation of the NIS2 Directive[87]. This model is characterised by the clear designation of operators of essential services, the establishment of specific risk management and reporting obligations, and the creation of a network of national competent authorities and CSIRTs. Despite sharing a common legal framework, philosophical divergences were observed: Polish legislation[88] is more prescriptive, setting out detailed timelines and procedures, whereas Dutch law[89] emphasises the "duty of care" (zorgplicht) principle, offering operators greater flexibility in selecting security measures.

Ukraine presents a model of resilience under conditions of war. Its approach is militarised and crisis-oriented, driven by the need to counter continuous large-scale cyber aggression. This is reflected in the strategic objective of establishing military cyber forces[90], active counterintelligence operations, and the prioritisation of critical infrastructure protection as a component of national defence[91]. The Ukrainian model also demonstrates a unique degree of societal mobilisation and unprecedented depth of international cooperation, extending beyond

84 Annual Analytical Review, 2024.

85 Accenture, "State of cybersecurity resilience 2025," 2025; CompTIA, "State of cybersecurity," 2025.

86 CompTIA, "State of cybersecurity," 2025.

87 Directive (EU) 2022/2555 of the European Parliament and of the Council "On Measures for a High Common Level of Cybersecurity Across the Union, amending Regulation (EU) No. 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148" (NIS2 Directive), 2022.

88 Act of Poland "On the National Cybersecurity System," 2018.

89 Act of Netherland "On Network and Information Systems Security," 2018.

90 Cybersecurity strategy of Ukraine (2021-2025), 2021.

91 O. Khodakivska, M. Martyniuk, Y. Lupenko, *Prospective analysis of the implementation of the "green" economy in the agricultural sector of Ukraine for the next 10 years*, in *Scientific Horizons*, 2023, Vol. 26, No. 10, pp. 163–179.

standard information sharing to include direct technical assistance, such as the Tallinn Mechanism[92] and the IT Coalition[93], as well as the investigation of cyberattacks as war crimes by the ICC[94].

Canada implements a federal partnership-based model. This approach stems from its state structure, wherein significant powers are vested in the provinces, as corroborated by OECD[95] on decentralised public investment. Canada's strategy and legislation[96] emphasise collaboration between the federal government, provincial authorities, and the private sector. The main instruments include not only mandatory requirements for operators in federally regulated sectors but also voluntary programmes such as Cyber Secure Canada, and an extensive information-sharing network facilitated by the CCCS. Canada's international cooperation is largely conducted within the Five Eyes alliance, which focuses on intelligence sharing[97].

Thus, the study concludes that state approaches to securing critical information systems are evolving from strictly technical mechanisms to comprehensive socio-legal systems. In the EU, this process is driven by the imperative of internal market harmonisation; in Ukraine, by an imminent military threat; and in Canada, by the necessity for coordination within a complex federal state. All countries face shared challenges such as workforce shortages and supply chain protection, compelling them to seek a balance between regulation, incentivisation, and international cooperation[98]. For the purpose of systematisation and vi-

92 Ministry of Foreign Affairs of Ukraine, "One year of the Tallinn Mechanism: 200 million euros for the cybersecurity of Ukraine's civilian infrastructure," 2024.

93 State Service of Special Communications and Information Protection of Ukraine, "Together in defending cyberspace: State Service of Special Communications, NCCC and ENISA signed a cooperation agreement," 2023.

94 Annual Analytical Review, 2024.

95 Organisation for Economic Co-operation and Development, "Government at a glance 2025," 2025.

96 Critical Cyber Systems Protection Act, 2025.

97 Annual Analytical Review, 2024.

98 Accenture, "State of cybersecurity resilience 2025," 2025; CompTIA, "State of cybersecurity," 2025; B. M. NURGALIEV, K. S. LAKBAYEV, A. V. BORETSKY, A. K. KUSSAINOVA, *The informal funds transfer system "hawala" as a segment of the shadow economy: Social impact assessment and framework for combating*, in *American Journal of Applied Sciences*, 2015, Vol. 12, No. 12, pp. 931–937; B. M. NURGALIEV, K. S. LAKBAYEV, A. K. KUSSAINOVA, A. V. BORETSKY, *Impact of organized crime on shadow economy: Social impact assessment*, in *Asian Journal of Applied Sciences*, 2014, Vol. 7, No. 1, pp. 644–651.

sual comparison of the key legal regulatory elements in the examined countries, the core provisions of their legislative and institutional frameworks have been consolidated in Comparative Table 2.

Table 2. Comparative analysis of legislative and institutional cybersecurity frameworks

Criterion	Poland	Netherlands	Ukraine	Canada
Key legislative act	Act "On the National Cybersecurity System"[99]	Act "On Network and Information Systems Security"[100]	Law "On the Basic Principles of Ensuring Cybersecurity of Ukraine"[101]	Critical Cyber Systems Protection Act[102]
Implementation of EU norms	Direct transposition of the NIS Directive; ongoing adaptation to NIS2	Direct transposition of the NIS Directive; ongoing adaptation to NIS2	Active harmonisation with NIS2 norms within European integration	Not applicable (domestic model)
Key coordinating body	Government Plenipotentiary for Cybersecurity	NCSC	NCCC	CCCS
Primary supervisory entities	Sectoral ministries	Sectoral ministries and specialised regulators (e.g., Telecommunications Agency)	SSSCIP, Security Service of Ukraine (SBU), National Police, National Bank of Ukraine (NBU)	Federal regulators for respective sectors

99 Act of Poland "On the National Cybersecurity System," 2018.
100 Act of Netherland "On Network and Information Systems Security," 2018.
101 Law of Ukraine No. 45 "On the Basic Principles of Ensuring Cybersecurity of Ukraine," 2017.
102 Critical Cyber Systems Protection Act, 2025.

Definition of critical infrastructure	Operators of essential services	Providers of essential services	Critical information infrastructure facilites (CIIF)	Operators of vital services/systems
Key operator obligations	Risk assessment, implementation of security measures, auditing, incident reporting	"Duty of care" and "duty to report"	Implementation of comprehensive protection systems, auditing, incident reporting	Development of cybersecurity programmes, risk management, reporting, compliance with government directives
Sanctions mechanism	Administrative (financial penalties up to 1 million PLN)	Administrative (financial penalties)	Administrative and criminal liability	Administrative fines and regulatory measures

[Source: compiled by the authors based on Annual Analytical Review[103]; Organisation for Economic Co-operation and Development[104]]

The systematised comparative analysis of the legislative and institutional frameworks clearly illustrates the divergences among the identified models. On one hand, the European approach (Poland, Netherlands) is marked by the direct implementation of common EU norms and the establishment of a clear hierarchy of regulators and supervisory bodies. On the other hand, the Ukrainian and Canadian models are outcomes of unique national circumstances. Ukraine's wartime system exhibits a distinctly militarised character, involving security agencies (SBU, State Service for Special Communications) in supervisory roles and criminal liability for violations[105]. The Canadian model, by contrast, reflects its federal structure, where the CCCS functions as the central coordinating body alongside federal regulators, and the sanction mechanism includes not only fines but also regulatory actions. Hence, the analysis affirms that despite facing common threats, legal and institutional responses remain profoundly dependent on

103 Annual Analytical Review, 2024.

104 Organisation for Economic Co-operation and Development, "Government at a glance 2025," 2025.

105 S.-C. KIM, J.-K. CHUNG, N. TRUSOVA, Z. AKHMETOVA, N. MUSAYEVA, *Simulating global supply chain reverberations from Ukrainian grain shipment interruptions*, in *Revista Iberoamericana de Viticultura Agroindustria y Ruralidad*, 2025, Vol. 12, No. 34, pp. 192–207.

the national context, laying the groundwork for further discussion of each model's advantages and limitations.

4. Discussion

The comparative study of state approaches to the protection of critical information systems has revealed the emergence of three clearly delineated models: the European harmonised model (Poland, Netherlands), the Ukrainian wartime resilience model, and the Canadian federal partnership-based model. The results demonstrate that, despite shared global threats, national regulatory and institutional frameworks are deeply influenced by their respective political, historical, and security contexts. Correlating the data with scholarly findings allows not only to ascertain these differences but also to understand their implications and identify potential directions for the further improvement of national policies. A key conclusion from the results is that all countries under study consider cybersecurity a strategic priority requiring systemic state intervention. This aligns with the framework articulated by Pearlson et al.[106], who argued that information systems governance must be an integral part of both overall business strategy and organisational management. In this context, national cybersecurity laws can be seen as state-level attempts to strategically shape the environment in which critical infrastructure operators are compelled to integrate cybersecurity into their internal organisational strategies.

Findings show that Poland and the Netherlands are progressing towards the standardisation of requirements based on EU directives. This is consistent with Alexei[107], who demonstrated through the example of Moldova that the implementation of international standards such as International Standards Organisation (ISO) 27001 not only enhances the security posture of government entities but also strengthens trust among international partners by ensuring data confidentiality and integrity. Thus, the choice of Poland and the Netherlands in favour of the harmonised model can be interpreted not only as compliance with EU obligations but also as a pragmatic move towards increased investment attrac-

106 K. E. Pearlson, C. S. Saunders, D.F. Galletta, *Managing and using information systems: A strategic approach*, John Wiley & Sons, 2024.

107 A. Alexei, E*nsuring information security in public organizations in the Republic of Moldova through the ISO 27001 standard*, in *Journal of Social Sciences*, 2021, Vol. 4, No. 1, pp. 84-94.

tiveness and reliability in international relations. Meanwhile, the Ukrainian experience – analysed in detail by Khimko[108] in the context of cloud security standardisation – demonstrated that in a hybrid warfare environment, the drive towards international standards must be coupled with the development of unique national protocols tailored to counter threats specific to an aggressor state.

The study revealed that national legislation imposes high-level requirements on operators: conducting risk assessments, implementing security measures, and reporting incidents. However, a gap persists between legislative adoption and effective implementation, which can only be bridged through advanced technological solutions[109]. The study by Inaganti et al.[110] on Cloud Security Posture Management (CSPM) using AI illustrates how automation can facilitate monitoring, vulnerability detection, and regulatory compliance, aligning directly with the responsibilities placed on operators in Poland and the Netherlands. Without such AI-enhanced CSPM systems, compliance with the NIS2 Directive would be unfeasible for large-scale organisations. Similarly, the work by Mohammed[111] on Security Operations Centre (SOC) audits underscored the importance of continuous monitoring and log analysis for threat detection. This serves as a practical tool for fulfilling incident management obligations, enshrined in all four jurisdictions examined.

The fundamental objective of the national cybersecurity strategies analysed is the protection of core principles of information security, which, as defined by Yee and Zolkipli[112], comprise the CIA triad: Confidentiality, Integrity, and Availability. The legal obligations imposed on operators in Poland, the Netherlands, Ukraine, and Canada are essentially high-level mandates to implement

108 Ya. P. Khimko, *Standardisation of information security of cloud services*, in *Uzhhorod National University Herald. Series: Law*, 2025, Vol. 3, No. 88, pp. 61-66.

109 A. MUKANOV, A. SADUOV, Y. AKBAYEV, Z. DULATBEKOVA, A. OSPANOVA, I. SELEZNEVA, E. MADIYAROVA, G. JEMPEISSOVA, *Composing of scenarios development in strategic planning*, in *Journal of Environmental Management and Tourism*, 2018, Vol. 9, No. 3, pp. 491–500.

110 A. C. Inaganti, N. Ravichandran, S. R. K. Nersu, R. Muppalaneni, *Cloud security posture management (CSPM) with AI: Automating compliance and threat detection*, in *Artificial Intelligence and Machine Learning Review*, 2021, Vol. 2, No. 4, pp. 8-18.

111 A. Mohammed, *SOC audits in action: Best practices for strengthening threat detection and ensuring compliance*, in *Baltic Journal of Engineering and Technology*, 2023, Vol. 2, No. 1, pp. 62-69.

112 C. K. Yee, M. F. Zolkipli, *Review on confidentiality, integrity and availability in information security*, in *Journal of ICT in Education*, 2021, Vol. 8, No. 2, pp. 34-42.

controls that guarantee these principles. In this regard, Duggineni[113] emphasised that integrity control is critical to the operation of any information system, as it ensures the reliability and accuracy of data, which is essential for decision-making within critical infrastructure. In response to the growing complexity of modern systems, scholars propose cutting-edge technological solutions. Zubaydi et al.[114] and Faccia and Petratos[115] argued that blockchain technology holds significant potential for ensuring security and privacy within IoT ecosystems, and for integration with Enterprise Resource Planning (ERP) systems to create immutable and transparent records of transactions. For Industrial IoT (IIoT) systems, Hassan et al.[116] demonstrated the necessity of even more specialised approaches, including automated vulnerability detection and firmware hardening, which exceed general legal requirements. The Indonesian experience, where Putro et al.[117] developed a dedicated framework for critical infrastructure protection in the context of a "smart government", confirms this study's conclusion that each country must adapt global standards to its unique context. All of this unfolds against a backdrop of global trends, as described by Ghelani[118] and Desyatnyuk et al.[119], which highlight how rapid digitalisation, particularly in the financial sector, continuously generates new threat vectors, making the development and adaptation of national cybersecurity strategies an ongoing and essential process.

---

113 S. Duggineni, *Impact of controls on data integrity and information systems,* in *Science and Technology*, 2023, Vol. 13, No. 2, pp. 29-35.

114 H. D. Zubaydi, P. Varga, S. Molnár, *Leveraging blockchain technology for ensuring security and privacy aspects in internet of things: A systematic literature review,* in *Sensors*, 2023, Vol. 23, No. 2, p. 788.

115 A. Faccia, P. Petratos, *Blockchain, enterprise resource planning (ERP) and accounting information systems (AIS): Research on e-procurement and system integration*, in *Applied Sciences*, 2021, Vol. 11, No. 15, p. 6792.

116 Y. G. Hassan, A. Collins, G. O. Babatunde, A. A. Alabi, S. D. Mustapha, *Automated vulnerability detection and firmware hardening for industrial IoT devices*, in *International Journal of Multidisciplinary Research and Growth Evaluation*, 2023, Vol. 4, No. 1, pp. 697-703.

117 P. A. W. Putro, D. I. Sensuse, W. S. S. Wibowo, *Framework for critical information infrastructure protection in smart government: A case study in Indonesia*, in *Information & Computer Security*, 2024, Vol. 32, No. 1, pp. 112-129.

118 D. Ghelani, *Cyber security, cyber threats, implications and future perspectives: A Review*, in *American Journal of Science, Engineering and Technology*, 2022, Vol. 3, No. 6, pp. 12-19.

119 O. Desyatnyuk, M. Naumenko, I. Lytovchenko, O. Beketov, *Impact of digitalization on international financial security in conditions of sustainable development*, in *Problems of Ecological Development*, 2024, Vol. 19, No. 1, pp. 104-114.

Particular attention in the course of this study was given to threats associated with the IoT and OT, which constitute the backbone of modern critical infrastructure, particularly smart grids. The findings of this research demonstrated that all countries recognise these sectors as priority areas for protection. The academic works of Tariq et al.[120] and Hasan et al.[121] provide in-depth technical insights into the understanding of these threats. Tariq et al.[122] emphasised that the IoT ecosystem is inherently vulnerable due to issues related to communication and management protocols. Hasan et al.[123] conducted a detailed analysis of the cyber-physical architecture of smart grids, identifying vulnerabilities in Supervisory Control and Data Acquisition (SCADA) and Advanced Metering Infrastructure (AMI) systems. These studies illustrate that the general legislative requirements identified in the course of this research are a necessary but insufficient condition for ensuring security. Specific technical standards and protocols are required, as discussed in the work of Tiwari et al.[124] concerning IoT security in the 5G era. Thus, a certain contradiction arises: while legislation establishes universal rules for all sectors, technological reality demands narrowly specialised solutions.

The Canadian model of sectoral resilience planning and the Dutch model of sectoral oversight represent attempts to reconcile this contradiction, aligning with the recommendations of the aforementioned authors. Supply chain security was identified as one of the key priorities in Canada's strategic documents and as one of the main threats in reports analysed by Ukrainian experts[125]. This fully corresponds with the conclusions of the scientific community. The study by

120 U. Tariq, I. Ahmed, A. K. Bashir, K. Shaukat, *A critical cybersecurity analysis and future research directions for the internet of things: A comprehensive review*, in *Sensors*, 2023, Vol. 23, No. 8, p. 4117.

121 M. K. Hasan, A. A. Habib, Z. Shukur, F. Ibrahim, S. Islam, M. A. Razzaque, *Review on cyber-physical and cyber-security system in smart grid: Standards, protocols, constraints, and recommendations*, in *Journal of Network and Computer Applications*, 2023, Vol. 209, article no. 103540.

122 U. Tariq, I. Ahmed, A. K. Bashir, K. Shaukat, *A critical cybersecurity analysis and future research directions for the internet of things: A comprehensive review*, 2023.

123 M. K. Hasan, A. A. Habib, Z. Shukur, F. Ibrahim, S. Islam, M. A. Razzaque, *Review on cyber-physical and cyber-security system in smart grid: Standards, protocols, constraints, and recommendations*, 2023.

124 P. Tiwari, N. Sharma, S. Chudhary, V. Gahlaut, *Ensuring IoT security in 5G era: Examining protocols, architectures, and security measures*, in A. Katti, R.K. Chourasia (Eds.), *Advances in Photonics and Electronics*, Cham: Springer. 2024, pp. 135-145.

Gangadhara[126] proposed the use of distributed ledger technology (blockchain) to ensure traceability and authentication of IIoT devices within supply chains. The national laws analysed in this study generally do not regulate security at the chip level, thereby creating a potential gap. This suggests that future state strategies will need to integrate not only software but also hardware aspects of cybersecurity, which will require even closer cooperation between legislators, regulators, and semiconductor manufacturers.

Finally, the results obtained allow for a re-examination of the relationship between cybersecurity and broader societal goals. The work of Ige et al.[127] proposed approaching cybersecurity strategies through the lens of the Sustainable Development Goals (SDGs). The conclusions of this study support this approach. Ensuring the resilience of energy, transport, and medical infrastructure (as demonstrated by the analysis across all four countries) directly contributes to the achievement of SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation and Infrastructure), and SDG 3 (Good Health and Well-being)[128]. This is especially evident in the Ukrainian context, where the struggle for cyber resilience equates to the struggle to preserve the basic functions of the state and society, which is a fundamental prerequisite for any form of sustainable development. Moreover, the study by Mohammed[129] on cybersecurity in smart cities illustrates

---

125 S. LEGOMINOVA, H. HAIDUR, *Analysis of modern threats to information security of organizations and the formation of an information platform to counter them,* in *Cybersecurity: Education, Science, Technique*, 2023, Vol. 2, No. 22, pp. 54-67.

126 B. GANGADHARA, *Origin distributed ledger for ensuring it security in cloud manufacturing* in *International Journal of Multidisciplinary Engineering in Current Research*, 2021, Vol. 6, No. 7, pp. 27-40.

127 A. B. IGE, E. KUPA, O. ILORI, *Aligning sustainable development goals with cybersecurity strategies: Ensuring a secure and sustainable future,* in *GSC Advanced Research and Reviews*, 2024, Vol. 19, No. 3, pp. 344-360.

128 M. GULIYEV, S. RUSTAMOVA, V. MAKHMUDOVA, T. AZIZOV, O. HUSEYNLI, *The modern status and prospects for further development in the Australian energy sector: Transformation, external economic relations, investment climate*, in *Polityka Energetyczna*, 2023, Vol. 26, No. 3, pp. 47–64; L. GALCHYNSKYI, *Estimation of the price elasticity of petroleum products' consumption in Ukraine*, in *Equilibrium Quarterly Journal of Economics and Economic Policy*, 2020, Vol. 15, No. 2, pp. 315–339; J. HASANOVA, K. NAJAFOVA, *Development of trade-economic relations between Azerbaijan–EU countries in the field of natural gas supply*, in *WSEAS Transactions on Business and Economics*, 2024, Vol. 21, pp. 1104–1114; A. HUSEYNOVA, O. MAZANOVA, P. KHUDIYEVA, H. MURADOVA, H. LEYLA, N. KAMALA, *Innovative way of solution of "Smart City" in Azerbaijan – city problems*, in *WSEAS Transactions on Business and Economics*, 2022, Vol. 19, pp. 1394–1402.

129 A. MOHAMMED, *Cybersecurity in smart cities: As cities become smarter, new vulnerabilities arise. Research can focus on securing IoT devices, smart infrastructure, and privacy concerns associated with smart city*

how the protection of urban infrastructure and citizens' data becomes central to ensuring a safe and sustainable urban environment (SDG 11).

Thus, the study demonstrated that the national cybersecurity models developed constitute an adequate response to existing threats as identified by both governmental and academic stakeholders. At the same time, a gap has been revealed between high-level legislative requirements and the complexity of their technical implementation, which underscores the critical importance of advancing innovative technologies (AI, blockchain, Endpoint Detection and Response (EDR), Extended Detection and Response (XDR)) and deepening cooperation between the state and the technology sector. The success of national strategies will depend on their ability to flexibly adapt to emerging threats, such as hardware-level attacks, and how effectively they can integrate cybersecurity into the broader context of achieving national and global SDGs.

5. Conclusions

The research established that despite the presence of shared challenges arising from the globalisation of cyber threats (the escalation of which was reported by 72% of organisations), each country develops its own unique governance model that reflects its legal, political, and security context. The analysis identified three such models: the European harmonised model (Poland and the Netherlands), which evolves in line with EU directives such as NIS2 and is aimed at standardising requirements and creating a predictable single digital market; the Ukrainian resilience model under wartime conditions, where military cyber defence and the mobilisation of all available resources to counter direct aggression are prioritised, as reflected in the creation of military cyber forces and the investigation of cyberattacks as war crimes; and the Canadian federal model based on partnership, where responsibility is distributed between the federal and provincial levels (which account for 51% of public investment), and protection is ensured through a combination of legislation and voluntary certification programmes for businesses. The study confirmed that, regardless of the chosen model, all states recognise the strategic importance of protecting critical infrastructure, the necessity of close public-private cooperation, and the strengthening of international collabora-

data, in *Pioneer Research Journal of Computing Science*, 2024, Vol. 1, No. 1, pp. 75-82.

tion to effectively counter threats.

The practical significance of the results lies in the formulation of a set of recommendations for improving national policies. For countries in the process of developing their cybersecurity systems, it is advisable to apply a hybrid approach that synthesises best practices from various models: adopting clear regulatory standards for operators from the European model; implementing crisis protocols and mobilisation mechanisms tested in Ukraine; and introducing a multi-level coordination system modelled after Canada's experience to involve regional authorities and businesses. For established systems, it is recommended to strengthen dialogue with representatives of the technology industry and critical infrastructure operators already at the stage of regulatory drafting, in order to avoid the creation of regulatory frameworks that are technically difficult to implement and to reduce the gap between legislative intent and practical implementation. For international organisations and alliances such as the EU, it is recommended to establish platforms for the exchange of experience not only on the technical aspects of cyber threats but also on the effectiveness of various models of public administration. Promising avenues for further scientific inquiry include conducting quantitative research aimed at assessing the correlation between specific models of state regulation and the actual level of security, including an analysis of the economic impact of incidents across different jurisdictions.

P.A. Persona e Amministrazione
Ricerche Giuridiche sull'Amministrazione e l'Economia
Legal Research on Public Administration and Economics
Special issue — Ebook
n. I year 2026