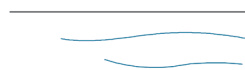
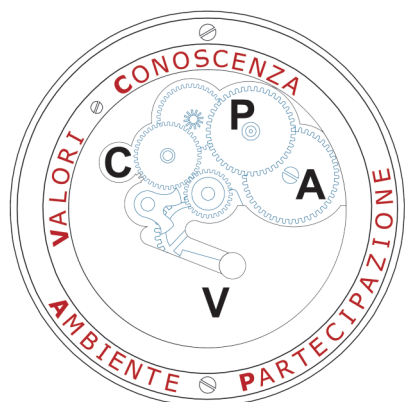


# RIVISTA DI STUDI SULLA SOSTENIBILITÀ

*Review of studies on sustainability*



**FrancoAngeli** 



RIVISTA  
DI  
STUDI SULLA SOSTENIBILITÀ  
*Review of studies on sustainability*

**FrancoAngeli** 

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## *Editorial*

by *Antonio Garofalo*

At the dawn of the new millennium, United Nations Organization expressed a clear judgment on the unsustainability of the current development model on an environmental, economic and social level. In this way, the idea that sustainability is only an environmental issue was definitively overcome, affirming the need for an integrated vision of the different dimensions of development. Subsequently, Agenda 2030 once again denounces the unsustainability of the current development model and recalls even more decisively what was recognized in the Millennium Declaration: it is necessary to create a system of multilateral governance to build a path of sustainable development.

In fact, it is precisely the structure of the current incomplete multilateralism and the standardization of production and consumption models that has led the different territorial systems to implement growth policies based on competitive strategies incapable of maintaining a socially shared “dynamic balance between territorial capital and state of well-being”. In other words, at a global and territorial level, the conditions for implementing a development model capable of responding to the needs of Society through a holistic and, therefore, Sustainable approach have failed.

This “vision” of sustainable development encompasses three fundamental needs: the ability of society to know how to pursue the search for an optimal balance between “material living conditions and quality of life”; the ability to overcome every form of inequality; the ability to know how to invest in the future, in the interest of future generations. All this requires the adoption, by the various territorial systems, of a new development model that is capable of: allocating the four stocks of natural, human, economic and social capital in the most efficient way possible; of knowing how to distribute the wealth produced fairly; of accumulating part of the wealth produced and allocating it to investments in favor of innovation.

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It is therefore evident the profound change that is affecting the competitive paradigms and the contextual recognition of the *knowledge factor* as the epicenter of the creation of value of companies and territories from which research and innovation, training, information and decision support emanate. All this is pushing stakeholders to review, in the range of available tools, those factors that can be recognized as real elements of advantage on which to build sustainable competitive development strategies.

Knowledge represents the main driver for the creation of value in a territorial system because it is able to start a dynamic cycle based precisely on the constitutive elements of an advantage stated above. It, therefore, becomes a fundamental strategic factor for the acquisition of benefits, but above all for their sustainability over time. From this perspective, therefore, it is necessary to recognize the important role that knowledge plays in the creation of value in modern economies, not only because it is the primary element from which the strategic components on which to act derive, but above all as a critical variable on which to focus sustainable development processes.

In this context, the centrality of a System approach to Knowledge emerges where Research, Socialized Innovation, Education and decision support capacity must constitute that Unicum capable of acting as a catalyst for a new Development model, whose fundamental objective is to maintain a dynamic balance between territorial capital and a socially shared state of well-being over time. These elements (Research, Socialized Innovation, Education and decision support capacity) are generated by knowledge: in fact, each of them contains within itself a seed of knowledge, or rather, an element that allows not only its reproduction and regeneration, but also its diffusion and transfer, in a virtuous cycle that is configured as a true “dynamic system of knowledge”.

Knowledge, in fact, enables research; generates innovation; provides training systems with the basic elements for the development of skills and know-how. Finally, in order for knowledge to activate a *dynamic cycle* that sees it as a driving force for research, socialized innovation and training, it is necessary to insert a further piece, that of decision support at the social, political-institutional and economic-entrepreneurial levels.

Starting from these considerations, this issue of Review of studies on sustainability hosts papers that address to activate and sustain the dynamic cycle of Knowledge aimed at building a path of Sustainable Development.

With respect to the Research element, the paper *Immigration-Migration and Ecological Human Imprint Philosophy and Life Perspective*, by the authors Safwat H. Shakir Hanna, Gian Paolo Cesaretti, Immacolata Viola, examines the ecological human imprint of migration and immigration,



emphasizing the impacts of human population growth on global sustainability. The study emphasizes the urgency of balancing human population dynamics with environmental capacity to ensure long-term global stability.

Alessandra Cecilia Jacomuzzi, Christine Mauracher, Eleonora Brotto in *Neuromarketing and Sustainability: Understanding Implicit Bias to Promote Sustainable Eating Habits*, propose with the Implicit Association Test (IAT), as a fundamental tool in accessing the unconscious dimensions of perception, providing valuable insights for marketing strategies aimed at promoting sustainable food choices.

*Sustainable Development Strategies in Organizational Management*, by Sofiia Kafka, Hennadii Mazur, Oleg Kharit, Olena Bulhakova, Maryna Martynenko, examines the impact of implementing sustainability strategies on organizational performance in companies across countries. The paper uses econometric modeling, regression analysis and case study analysis to examine how regulatory frameworks, technological infrastructure, market environment, and social environment culture influence the relationship between sustainability strategies and performance indicators. The findings can be applied across a range of industries, including the improvement of strategic planning and sustainability policymaking.

The authors Vali Isa Valiyev, Volodymyr Shevchuk, Lyudmila Shtefan, Halyna Riabenko, Olena Zhuravel, in the paper *Financial Instruments that Ensure Food Market Sustainability* investigated financial instruments ensuring the food market sustainability in the face of economic and environmental challenges. The research employed the following methods: SWOT analysis, econometric, correlation, and regression analysis. A promising direction for further research is to study in more detail the effectiveness of the use of mixed financial instruments for the sustainable development of the agricultural sector.

Environmental management of territorial communities is important for preserving natural resources and mitigating environmental risks, which contributes to achieving sustainable development goals (SDGs). The aim of the paper, *The Impact of environmental management on the sustainable development of territorial communities*, by Mykhailo Pyrtko, Valentyna Abalmasova, Mary Ene Atalawei, Oleksandr Govorun, Liliia Muntian, is to assess the effectiveness and impact of environmental protection expenditure (EPE) as an important tool of environmental management on the sustainable development of territorial communities. The study employs regression analysis, correlation analysis, and comparison methods.

In *Analysis of the institution of parole in the context of criminal law theory and practice*, the author Sandugash Nuridin studies the theoretical and

practical problems associated with its application, including issues of legal guarantees and the effectiveness of the institute as a whole. The article uses a comprehensive approach that includes an analysis of current legislation, judicial practice, as well as a sociological study of the opinions of practicing lawyers and representatives of the penitentiary system.

Vilayat Ismayilov, Nizami Gafarov, Elshan Ibrahimov, with the paper *Shadow economy dynamics: A comprehensive assessment of tax compliance strategies*, conducted an in-depth analysis of strategies to improve tax compliance in a dynamic shadow economy. The study addressed the problem of the shadow economy, which poses a serious threat to the economies of both developed and developing countries.

*The role of socially responsible marketing in increasing the competitiveness of transnational corporations in an unstable market environment*, by Tetiana Kniazieva, Lyudmila Orochovska, Oleksii Zhamoida, Anna Maryna, Oleksandr Chernyshov, analyzes the fundamentals of socially conscious marketing, which are essential to maintaining multinational companies' competitiveness. A series of recommendations for enhancing the efficacy of socially conscious marketing strategies in boosting multinational firms' competitiveness in an unpredictable market environment is the study's practical outcome.

Scientific article, *Regulatory and legal support of the positive reputation of state bodies: on the example of the legislation of the Republic of Kazakhstan*, by Saltanat Ayubayeva, Larissa Kussainova, Alua Ibrayeva, Gulim Ukibayeva, Khalel Kussainov, Talgat Akimzhanov identifies differences from similar concepts of reputation, to reveal the capabilities of state bodies with the right approach to the formation of their reputation. The research is based on the analysis of institutional and theoretical understandings of the reputation of state organizations, as well as on conducting an expert survey among employees of the Central Office of the Agency for Civil Service Affairs of the RK.

With respect to “Innovation” element, authors Vera Sibilio, Gian Paolo Cesaretti, Sawfat H. Shakir Hanna, Irene Paola Borrelli, Kateryna Kononova, Immacolata Viola in the paper *Territories between global competition and Sustainability: Getting out of the Race to the Bottom Trap*, emphasize the importance to implement a change in the economic paradigm, moving from a linear economic system to a circular one, aimed at producing goods and services inspired to three principles: social utility, efficiency and social ethics.

Again, with respect to the “Innovation” element, the papers *Government e-procurement as a type of modern information technology; Digitalisation in Central Asia and material/financial assistance of South Korea* they have

highlighted the benefits deriving from the introduction of electronic processes into the public procurement system and from the requisite state financial development strategy revision. In particular, in *Government e-procurement as a type of modern information technology*, the authors Hiflobina Dermaku, Minerva Dermaku examined the processes of building a system of public electronic procurement as one of the key varieties of modern information technologies. In the course of the study, a combination of theoretical methods of analysis, synthesis, and generalization of information was used. While in *Digitalisation in Central Asia and material/financial assistance of South Korea*, authors Bongchul Kim, Mehmet Fatih Oztarsu, Ho Kim conducted a critically examination Kazakhstan's tax system deficiencies to identify enhancement trajectories, utilizing Polish and Croatian comparative frameworks. Methodologically, the investigation employed statistical analysis, analogical reasoning, generalization techniques, and formal legal-logical approaches. The authors posit that institutional tax structure formation correlates intrinsically with tax policy orientation and implementation.

The third constitutive element of the dynamic cycle of knowledge, Training, involved the papers *Indicators for assessing sustainable development goals in education and their monitoring in Kazakhstan* and *Towards a Sustainable Penitentiary System: Education, Rehabilitation and Restorative Justice in the 2030 Agenda*. In the first article, the authors Bepalyy Sergey, Petrenko Alexandr, Mussina Alma, Kolesnikov Yuriy, Bepalaya Yelena analyzed the leading national models of education, which are the most “mature” and developed, with an emphasis on sustainable development. The authors pay special attention to the education system of Kazakhstan, its features in comparison with these models, as well as consideration of initiatives aimed at achieving sustainable development goals in education, which are integrated into national projects and other strategic and program documents of Kazakhstan.

Francesca Latino, Rosabel Martinez-Roig, Francesco Tafuri highlighted the penitentiary system as the key element of Criminal Justice. This system is not free from numerous critical issues related to overcrowding, structural deficiencies and the difficulty of implementing effective re-education programs. The authors draw attention to the role of detention not only as a punitive measure, but as an opportunity for the rehabilitation and social reintegration of prisoners. Through the 2030 Agenda for Sustainable Development, in particular with Goals 4, 10 and 16, the importance of a fair and sustainable approach to the Prison System is highlighted. Innovative strategies, including education, vocational training, and psychological support, are explored to reduce recidivism and promote restorative justice.

Finally, in support of the constituent element "Decision Support", the paper *The use of consulting to increase the sustainability of the higher education institutions in times of crisis*, by Vira Drahunova, Alla Mykhatska, Olena Burluka, Norik Gevorkian, Anatoliy Babichev, identified the main factors that affect the sustainability of HEIs in times of crisis, as well as to analyze the impact of consulting services on ensuring this resilience. The study employed methods of consulting activity analysis, a crisis sustainability survey, and the Workplace Wellbeing Questionnaire. Spearman's rank correlation coefficient and structural equation modeling were used for statistical analysis. The reliability of the research methods was tested using Cronbach's alpha.

I believe that this issue of our Review also constitutes an important contribution to supporting the dynamic cycle of Knowledge in order to contribute to the global strategy of transition towards Sustainability.

To all the authors goes my deepest gratitude.

# *Immigration-Migration and Ecological Human Imprint Philosophy and Life Prospective*

by *Safwat H. Shakir Hanna*<sup>\*</sup>, *Gian Paolo Cesaretti*<sup>°</sup>, *Immacolata Viola*<sup>^</sup>

## *Abstract*

This study examines the ecological human imprint of migration and immigration, emphasizing the impacts of human population growth on global sustainability. As the world population surpassed eight billion in 2022, resource depletion, environmental degradation, and socio-economic challenges have intensified. Migration and immigration, while offering economic opportunities, also strain receiving countries' natural resources, infrastructures, and social fabrics. The paper introduces the Ecological Human Imprint Migration and Consequence Process (EHIMCP) model, which assesses migration's effects on ecological sustainability, economic stability, and societal balance. Key findings suggest that population growth exacerbates poverty, environmental degradation, and political tensions, necessitating sustainable policies and strategic resource management. The study underscores the urgency of balancing human population dynamics with environmental capacity to ensure long-term global stability.

*Keywords:* Ecological Human Imprint, Migration and Immigration, Environmental Sustainability, Population Growth, Resource Depletion, Socio-Economic Impacts.

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## Introduction

Ecological human imprint is a way of life regarding sustainability to explain the reality of impacting the human population on the global ecosystem. According to the article, the human population is increasing alarmingly. The international human population reached more than eight billion globally in 2022. It ends with stress on the availability of natural resources that humans depend on in their lives and, consequently, their existence. For example, Maja and Ayano (2021) indicated that rapid population growth continues to be a significant underlying force of environmental degradation and a threat to the sustainable use of natural resources. It reduces the quality and quantity of natural resources through overexploitation, intensive farming, and land fragmentation. Regions with high population pressure face scarcity of arable land, which leads to shortened/removed fallow periods, declining soil fertility, and farm income due to farm subdivision. Furthermore, landless individuals or those who operate small farms resettle or cultivate marginal lands encroach on natural forests in search of more vacant land, which alters the carbon source-sink dynamics of the environment. Low farm income from small farms exacerbates farmers' food insecurity and constrains their ability to adopt certain climate-change adaptation technologies.

On the other hand, the increasing human population through migration and immigration will cause degradation of the natural resources available in the receiving areas, regions, and countries. Consequently, it is clear that population growth harms the environment, the intensification of agriculture, the uncontrolled industrialization and economic development, the depletion of resources, and the destruction of natural habitats are evident and undeniable in our current world. For this reason, it is necessary to implement intelligent and concrete strategies to minimize the impacts and effects of environmental degradation. Therefore, there is an urgent need to look for real development solutions and sustainable policies to maximize the use of resources without degrading the environment's capacity to restore itself and simultaneously obtain a balanced assessment of humans' impact on the planet.

Migration is a global phenomenon that significantly shapes nations' demographic, economic, and social landscapes (Akpuokwe et al., 2024). migration is a multifaceted process influenced by economic, political, and environmental factors. These issues can be critical to the social fabric of the communities, societies, and countries that receive migrants.

Shakir Hanna and Osborne-lee (2011) indicated that the increase in the human population also helped the deterioration of the environment because

this increase led to conflict over natural resources. Accordingly, human individuals and the population are expelled from their native lands to go to other places to survive and, consequently, to find survival places to continue life (Maja and Ayano, 2021).

The question is whether migration and immigration can support preserving and conserving natural resources. We should develop a strategy to reduce the consumption of natural resources and conserve them for future generations. In consequence, it attains the sustainability. On the other hand, we should support the increase in production for products and services and the increase in productivity and efficiency of using resources. Migration of human population from one country to another can impact the country receiving migrants for many issues such as 1) ecological impacts, 2) economic impacts, 3) humanitarian impacts, 4) social impacts, 5) ideological impacts; 6) demographical impacts; and; 7) political impacts. These impacts can alter societies and communities and impose critical changes according to migration thoughts and beliefs. In this respect, it can destroy the balance of the receiving countries and structures of the societies.

The paper will discuss all the above issues in detail and present a model to discover the problems and consequences. The model is called the Ecological Human Imprint Migration and Consequence Process (E<sub>HI</sub>MCP).

### **Questions That Must be Answered and These Questions Are**

How can the benefit of humanity be controlled because no sufficient natural resources exist to serve humanity and all living organisms that live on Earth?

- 1) The global increase in the human population above the natural rate has reached around eight billion people, more than double the previous years. Furthermore, the natural resources have been the same since the world's creation, but these natural resources began to decline and weaken because there was no creation of new resources.
- 2) Unfortunately, so many global ideologies allow increasing and encouraging human population explosion without control. Additionally, there is no availability of resources that are sufficient to cover everyone.
- 3) The ideologies are: a) Some support the increasing human population by allowing and favoring the rising human population to reduce taxes that families can submit annually. Therefore, when the population of the family increases, the countries should increase the substantial taxes to force a reduction of human population; b) another ideology for growing

human population is to occupy a region or a country and change the demography of the countries or regions.

- 4) Accordingly, many countries are facing a shortage of natural resources and infrastructures needed to fulfill the needs of native people and newcomers to other countries, regions, and communities. It will lead to chaos, conflicts, and fights between the native and migrant people in the living areas because the standard of living is reduced. A simple example we can discover is the fighting between humans and invading wild boars in different places such as Texas, the USA, and Italy. Similarly, humans see the wild boars as invading species in their environment and destroying their land, and that also can happen for human population migrants invading the native people's places, demography, and niches, causing stresses on the environment and reducing the availability of commodities, goods, services, and supplies. Consequently, poverty is increasing, and the destruction of the fabric of societies. An additional example is the migrants in US cities and sanctuary cities; the migrants need housing, food, and jobs, but there are no sufficient resources to cover the needs of newcomers and immigrants. Consequently, the stress in all kinds of living situations increases crime rates, squandering, and invasion of houses.
- 5) Another issue is that the exporting countries of immigrants try to encourage the immigrants to leave their native places to get rid of the heavy burden of the population and provide necessary goods and services.
- 6) Studies by Joachim Vogt Isaksen (2019) suggested that a downward economic spiral correlates with more negative attitudes towards immigration.
- 7) Additionally, to sustain development and its continuation, more inventions must be speedier to produce more goods and services to meet the demands and better use and conserve natural resources for the continuation of the new generations. In general, the most crucial aspect is the speedy production and creation of goods and services or the slower human population growth for the demands to meet the needs of the human population to the point of the break-even point. There are no alternatives; otherwise, the world will be collapsing.

Figures (1 & 2) indicate the ecological human imprint migration and immigration problem globally and its consequences. This diagram shows the analysis for increasing humans: a) increase poverty Figures (7 & 8); b) Economic, social, and ideological problems related to migration; c) Environmental and climate changes; d) Stress impact the human population and their living; and e) Crowd destruction.



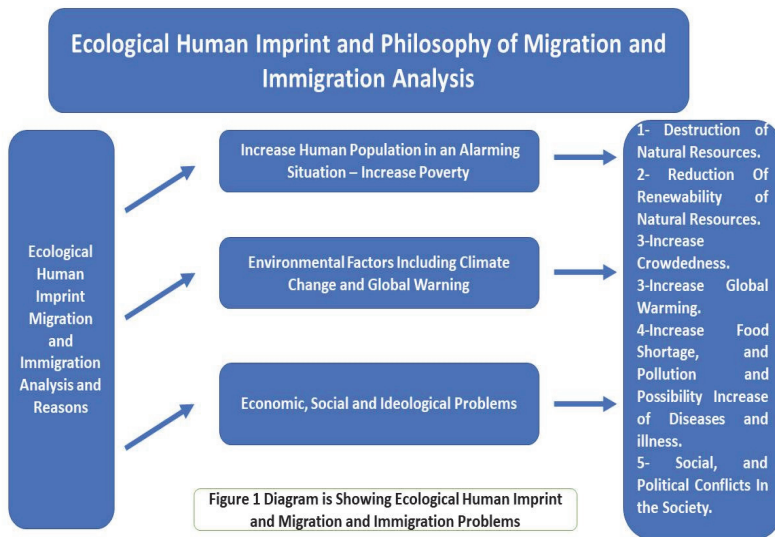


Figure 1

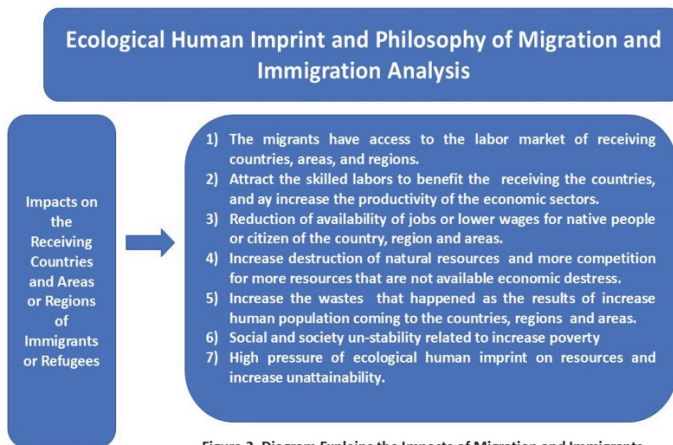


Figure 2

It is clear that population growth harms the environment; the intensification of agriculture, the uncontrolled industrialization and economic development, the depletion of resources, and the destruction of natural habitats are evident and undeniable in our current world. For this reason, it is necessary to implement intelligent and concrete strategies to minimize the impacts and effects of environmental degradation. There is an

urgent need to look for real development solutions and sustainable policies to maximize the use of resources without degrading the environment's capacity to restore itself and simultaneously obtain a balanced assessment of humans' impact on the planet. The human capacity for improvement and technology opens daily windows and doors to new sustainable solutions that can generate substantial changes in the production, conservation, and renewal of ecosystems and resources. Governments must achieve improvements and find ways to be more involved in environmental issues, seeking to improve their populations' quality of life, health, and livelihood through viable and sustainable solutions for the correct use of resources. Governments, communities, and every person on the planet, whether living in a developed or developing country, must find solutions and alternatives to benefit. Human carrying capacity must not reach its limits before finding solutions to actual problems; human influence, positive technological advances, and current developments on issues such as the environment must be a permanent strategy to minimize the ecological footprint of humans on resources. Proper education, correct land management, technological improvements, economic investment, adequate resource management and awareness, and better public policies regarding natural resource management are crucial elements for the development of communities and poverty eradication.

Migration Policy Institute (MPI) 2022 Batalova indicated that the latest available estimates, there were 280.6 million global migrants in 2020 – representing close to 3.5-4 % of the world's human population. It means that migrants are equal to the size of the USA, with many variations of human people in terms of the genetics of human beings' breeds, in addition to their variations in education, ethnicities, and race complexity. Most immigrants, people have permanently moved in search of better livelihood opportunities for themselves, a safer and more prosperous life for their children, or protection from conflicts, persecution, or the effects of natural disasters.

## **Classification of major migrants**

**Migrants are classified into several classes (Figure 3) as follows:**

### **A) Economic Migration**

Economic migration refers to people moving from one region to another in search of better job opportunities or an improved standard of living. The people most likely to relocate for a job are people 25 to 54 years old or “working-age adults.” Younger adults are more likely to move to attend school, and seniors most often move for family reasons (Whitaker,

2019). Another type of people is ambitious about changing their lifestyle and improving their quality of life. Additionally, opportunities in another region or geographical area increase migration's perspective. Many people go to Australia, Canada, the USA, and other countries, particularly Europeans, as economic migrants to escape the low wages and deplorable working conditions.

Furthermore, the younger adults trying to immigrate to another country to find a better opportunity for a life of their future and their future of getting and forming families and, in consequence, produce more population, which will impact the existing social impacts and community fabrics from the point of availability of products, goods and service availability to the existing community and the newcomers. For example, the community can face problems with housing and other services, such as health care, that are not available for their existing community and the newcomers. Studying economic migration helps economists understand its broader effects on economic growth, labor dynamics, income distribution, and resource allocation, which are crucial for shaping effective policies.

#### B) Political migration

Political migration is one of the significant movements of the human population from one country to another. Political factors cause people to move from their home country to another country. War, persecution, and the absence of political rights are the predominant political factors in migration. Human persecution involves the harassment, discrimination, and torture of people who disagree with their government and have minority religious beliefs or ethnic backgrounds. Because conditions in their country are unsafe, these people are forced to migrate to safer countries. Asylum-seeking is a direct result of the outflow of political migrants from an oppressive state to a more democratic country. For example, the Migration Policy Institute indicates that the United Kingdom received the highest number of asylum applications: 555,310 or 15 percent of the total global asylum applications in 2002. These numbers, which remain roughly the same, reflect the rise in claims of persecution in countries such as Iraq, Zimbabwe, Somalia, Afghanistan, and China. Moreover, the lack of political liberties and rights and endemic corruption act as push factors for migrants seeking greater freedoms. Even though they are not persecuted in their places of birth, concerns that limit people's freedoms cause them to leave. If the political environment is hostile, the economic

situation will likely be poor. It triggers migration for political and economic reasons. Most migrants leave for more democratic countries where they can pursue better careers, education, and freedom.

According to the National Geographic's Earth Pulse, approximately 42 million people worldwide have been forced to migrate due to war. War and armed conflict have diverse causes, but political issues influence all these factors. War migrants not only migrate to the usual countries such as the United States, United Kingdom, Canada, and Australia, but they also migrate within their geographical areas such as within their continent. Most war migrants become refugees or asylum seekers. Refugees International indicates that in 2009, there were 15.2 million refugees globally. In this respect, the costs of migration to escape conflict have increased, mainly as a result of the construction of an increasingly stringent international migration regime; migrants' socio-economic background determined by control over or access to various forms of capital has become ever more critical in shaping the forms, patterns, and impacts of their movement (Van Hear, 2006).

Political instability caused by cultural diversity causes people of a specific cultural affiliation to move within or away from their country. As a result of wars or ethnic strife, ethnic groups that were initially left apart can be forced within the exact geographical boundaries. An influx of one cultural group can displace another group. Governments can also force cultural groups to move from one place to another (within or outside the country) to gain political advantage by having less cultural diversity. Political Factors in Migration What Is Urban Encroachment? (sciencing.com) (Harper, S., 2022) (Accessed August 28-2024).

#### C) Humanitarian Migration

Humanitarian migration relates to the movement of people who feel forced to move. Distinguishing which migration forms fall under humanitarian migration is not straightforward. Migration research has a history of separating between 'forced' and 'voluntary' migration flows. However, this distinction has been challenged since the 1990s (Richmond, 1994; Van Hear, 1998).

Studying economic migration helps economists understand its broader effects on economic growth, labor dynamics, income distribution, and resource allocation, which are crucial for shaping effective policies (Whitaker, 2019).

#### D) Ideological Migration

Ideological migrations are so many concepts that can be discussed from many faces as follows:

- 1) An ideology is a set of beliefs or philosophies attributed to a person or group of persons, especially those held for reasons not purely about belief in certain knowledge, in which “practical elements are as prominent as theoretical ones.” Formerly applied primarily to economic, political, or religious theories and policies, in a tradition going back to Karl Marx and Friedrich Engels, more recent use treats the term as mainly condemnatory. Ideology – Wikipedia.(accessed on January 25, 2025).
- 2) Human population and ideologies, the relationships between human rights, ideologies, and population policies raise broad philosophical, moral, and political issues. Unquestionably, population pressures and the means to deal with them represent one of the most pressing problems of our time, profoundly affecting us both as individuals and as members of a community (Veil, 1978).
- 3) Religion ideology appears more as a system of personal relief and ideologies as a basis for collective action – for politics. Religions are mainly concerned with the salvation of the soul and its life after death in a heavenly Paradise or a subterranean Hell (Claval, P., 2015).
- 4) The ideology of changing the political process is the idea of changing the power of who will govern the people in the way the people continue to take over a group of people through the election of people who can support the ideologies of some people or groups. For example, Muslim immigrants are trying to invade European countries by increasing by multiplying their population numbers and taking advantage of the social support of these countries to receive money. Further, they want to enforce their ideologies of Sharia Laws and others. In this respect, quoting the following: “Some critics say that Muslim-led states that follow sharia are particularly intolerant of nonbelievers or those who practice other religions. Scholars say that this intolerance largely stems from premodern restrictions applied to non-Muslim minorities in Muslim lands, which were supported by certain hadiths later introduced into the Muslim canon that recommend the death penalty for Muslims who commit apostasy. Nigeria and Pakistan have carried out capital punishment for blasphemy and apostasy, as did Sudan for many years” (Understanding Sharia: The Intersection of Islam and the Law | Council on Foreign Relations (cfr. org) Religious Freedom in the Middle East | Council on Foreign Relations (cfr. org) (Bashir et al., 2021). (Accessed on September 9, 2024). Additionally, Muslim Lands are defined as acquired lands taken by conquering the lands of other countries and imposing Sharia laws on these countries. Additionally,

many books support the destruction of churches; for example, in Egypt, there is a book called *Establishing a Brilliant Argument for the demolition of the churches of Egypt and Cairo* (El-Damanhour, 2013).

- 5) Other groups of people, when they immigrate to other countries are enforcing their ideologies, such as the Mexicans or Arabs in America who want to change the demography of a state to be the dominant population in that state and to be more than 50% of the population to influence the legislation and applicable laws of that state to benefit their population. Sciortino (2000) argued that migration internally divides each party between those close to the party's economic tradition and those close to its socio-cultural tradition. Perlmutter (1996) emphasized that left-wing parties have to accommodate conflicts between unions that traditionally favor restrictive policies and human rights advocates or ethnic groups lobbying for more open policies, while right-wing parties tend to be divided between employers favoring immigration and cultural conservatives asking for immigration restrictions.
- 6) The present-day political ideology and preferences for redistribution in the United States were historically affected by European values and ideas of the welfare state brought by migrants during the nineteenth and early twentieth centuries. More recently, the influence of the Hispanic community has been seen across the United States, with more and more states translating laws and various applications into Spanish. Today, driver's license exams are offered in Spanish in all but five states, except (Alaska, Louisiana, Oklahoma, Utah, and Wyoming (International Bank for Reconstruction and Development / The World Bank, 2023).

## **Materials and Methods**

### **Rethinking and Calculating Ecological Human Imprint Migration and Consequence Process (E<sub>HI</sub>MCP)**

Rethinking and calculating the human imprint of the migrant is very important to assess their impacts on the receiving country and the country exporting them. Why is there a current discussion of immigration in Europe, the USA, and other countries? This issue appears on the global level now because the increasing human population is reaching an alarming level, and their requirements for a satisfying level are insufficient to cover their needs

from the environment. Additionally, the Earth is not able to meet everyone's demands. Therefore, there is a need for governments, organizations, and other agencies to look into these issues and to come up with necessary solutions that can satisfy everyone without destroying the environment for the sake of next generations' survivability; otherwise, the chaos will be dominating the world forever until the balance between human population and the natural resources reached (Shakir et al., 2014, and 2019).

Generally, the Ecological Human Imprint ( $E_{HI}$ ) (Shakir Hanna et al., 2014) is a method to compare human demands from nature with the biosphere's ability to regenerate resources to provide goods and services that humans need. Therefore, the Ecological Human Imprint Migration and Consequence Process ( $E_{HIMCP}$ ) describes 1) What is the value of migrants positive and negative on ecosystems they are living within (i.e., Impacts of immigrants' presence in the host communities, regions, and countries in addition to their impacts on their original places); 2) Energy consumption and transfer to produce goods and services; and 3) Sustainability impact and supporting its concept.

In this respect, the data on human population and other resources were gathered from published series from different agencies such as the World Bank, UN Food and Agriculture Organization (FAO1960-2024 FOASTAT and 2008 FOASTAT), NOAA (2012), United States Department of Agriculture (USDA, 2012), United Nation Development Program (UNDP), United Nations Environmental Program (UNEP, 2009), (UNFPA, 2001), WWF reports, 2002, 2004, 2006, 2008, 2010, and 2012, (WHO,2005), WRI (1960-2005) Series, (WRI, 2000), and (WRI, 2012) and World Bank Data (1960-2012 series). Additionally, we used the IOM 2024 report edited by McAuliffe and Oucho (2024).

The data were analyzed using regression, correlation, and statistical methodologies using Sigmaplot (Version 13) software and Systat-software.

## Results

The ecological human imprint of migration impacts the global economy, environmental resources, and social development, which should be considered. Respectively, these three corners of the triangle are significant connections between development and the existence of global human beings. The global stock of the migrating and refugee population reached about 280.5 million people in the year 2020 and continues to increase at an alarming rate. Accordingly, the percentage of migrants' population to the global humanity is about 3.7% in 2020 and will reach 5% by 2025 (Figure 3

and Figure 4). It can impact small countries such as Sweden, Denmark, and maybe Norway, where the percentage of migrants is about 15-20% of their native population. In this respect, political parties in these countries and other European countries are requiring and talking about limiting the number of incoming migrants and refugees to the capacity for civic integration (and avoiding radicalization (Bech et al., 2017).

On the other hand, the European studies and results show more pessimistic attitudes toward immigration's contribution to the economy, especially in countries where the crisis had the most severe economic impact. The findings suggest that a downward economic spiral correlates with more negative attitudes towards immigration (Vogt Isaksen J., 2019). The significant migration impacts to other countries, communities, and regions are 1) Natural resource shortages, 2) Critical change to Earth systems, 3) Economic confrontation, 4) Disruptions to critical infrastructure, 5) Biodiversity loss and ecosystem collapse, 6) Chronic health conditions, 7) Disruptions to a systemically important supply chain, 8) Intrastate violence, 9) Inflation and consequences, 10) Increase unemployment and increase competition for jobs, 11) Lack of economic opportunity, 12) Economic downturn, and 13) Societal polarization and increasing the poverty (Figures 3,7, 8).

Figure 4, Figure 5, and Figure 6 indicate that the increasing human stock of migration is related to the rising human population and the stress of increasing human population in some places rather than others. It will lead to competition in the exploitation of natural resources and the depletion and exit of the human population from one stressed area to another.

Growth does not automatically reduce vulnerability; only the right kind of growth does (Bowen et al., 2012). In this respect, the type of growth is restricted to developing and sustaining the development because, without sustainability, any development will decrease with increasing human population and demands from natural resources that we depend on.



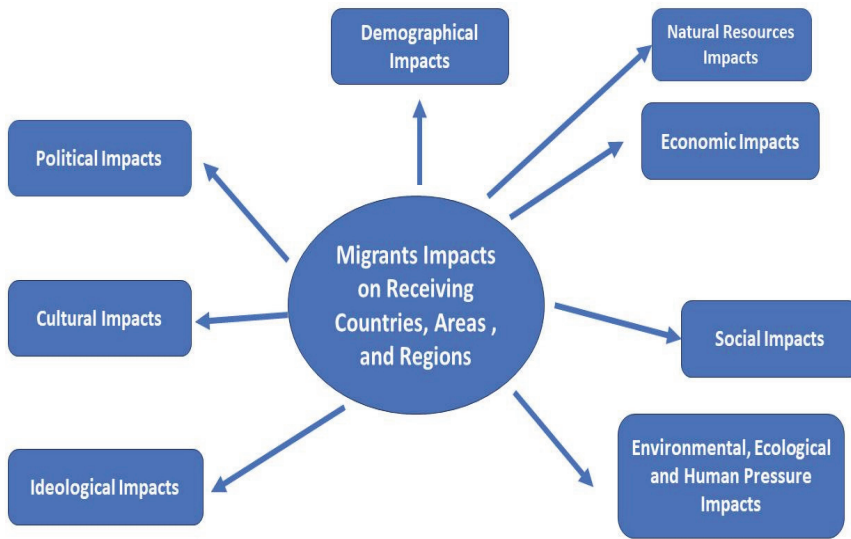
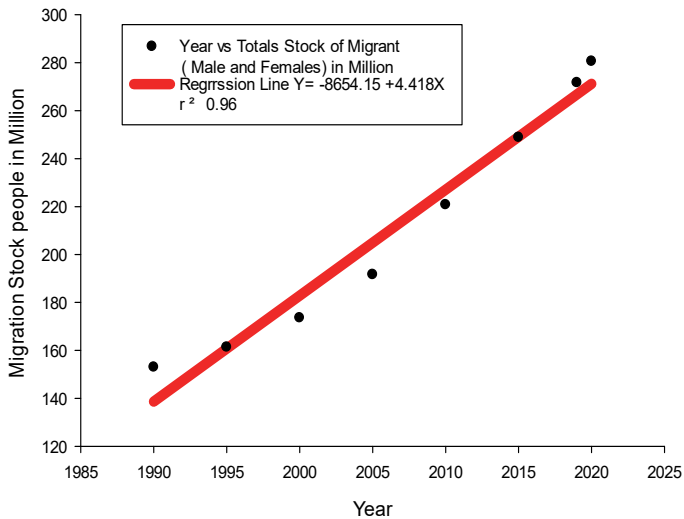
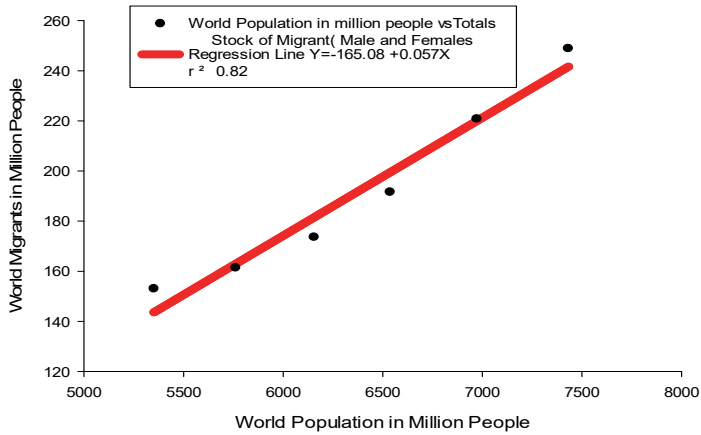


Figure 3



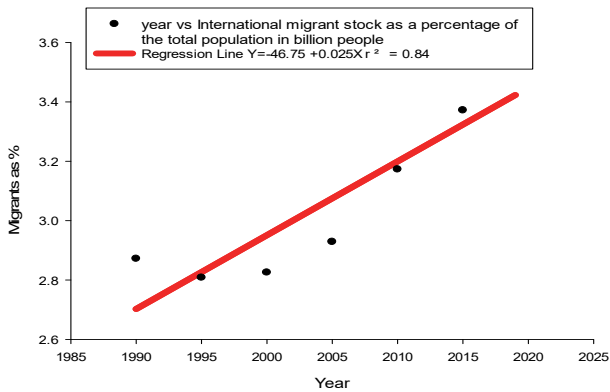
relationship between year and the global migration stock in million people

Figure 4



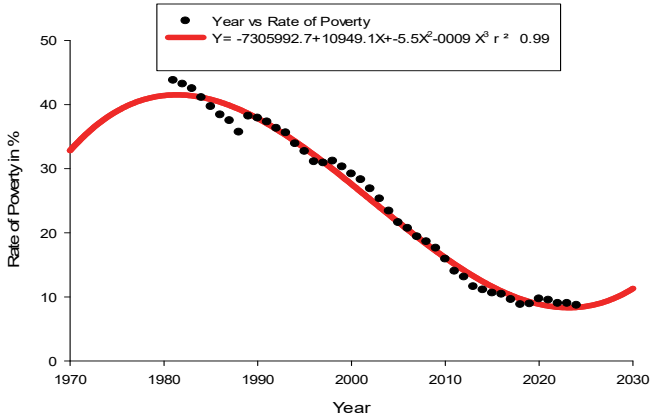
relationship between world human population in million and world migrant stock in million people

Figure 5



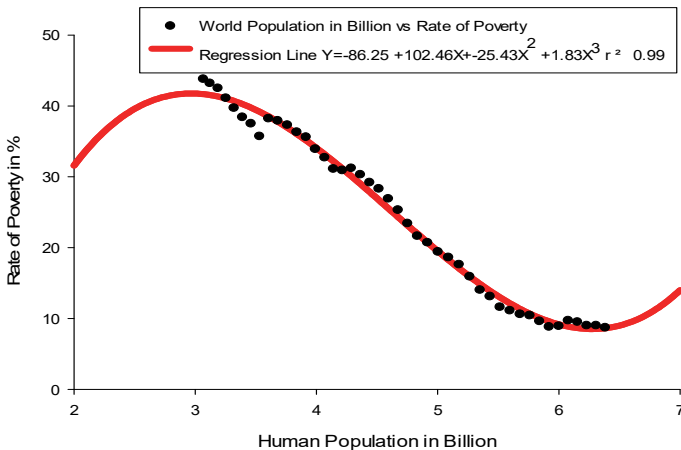
relationship between year and percentage of migrants of total human population

Figure 6



relationship between Years and the global rate of poverty in %

Figure 7



relationship between human population and the rate of poverty in %

Figure 8

## Application of (E<sub>HI</sub>MCP) Model

Application of the (E<sub>HI</sub>MCP) Model as developed with Stella (2001) software indicates that increasing migrants globally from one country to another will impact the reduction of the biological capacity as the result of increasing human population that will end in increasing poverty in receiving

countries of the migrant, especially the countries with limiting natural resources (Figure 9 and Figure 10). Additionally, with an increasing migrant population, there is a reduction in the availability of cropped lands, cropped capacity, and the efficiency of cropped lands. Consequently, the migrants overload the countries' natural resources with natural resources that are sufficient to receive the countries' migrants. Despite the scenarios of the positive impacts of migrants as laborers, expecting to increase productivity, the negative consequences are more than the productivity produced by migrants. It is essential to discover the balance between the consumption of the migrants and the productivity of migrants. With the number of migrants from one country to another, the receiving countries should reduce the support for migrants to take the services and goods for free, considering the migrant people sometimes label themselves as low incomes. In some countries, sometimes humanity issues as a philosophy at the current level in the United Nations, and the philosophy of human rights can perceive this condition and, in turn, exploit them. There should be thinking about the balance of immigrants and the natural resources availabilities in the countries receiving immigrants to produce goods and services. The receiving countries of immigrants should reduce the burden of taxes on the local people because the costs of spending money on immigrants who cannot increase productivity will end in the bankruptcy of these countries. There should be wise immigration policies to be adopted by the decision-makers.

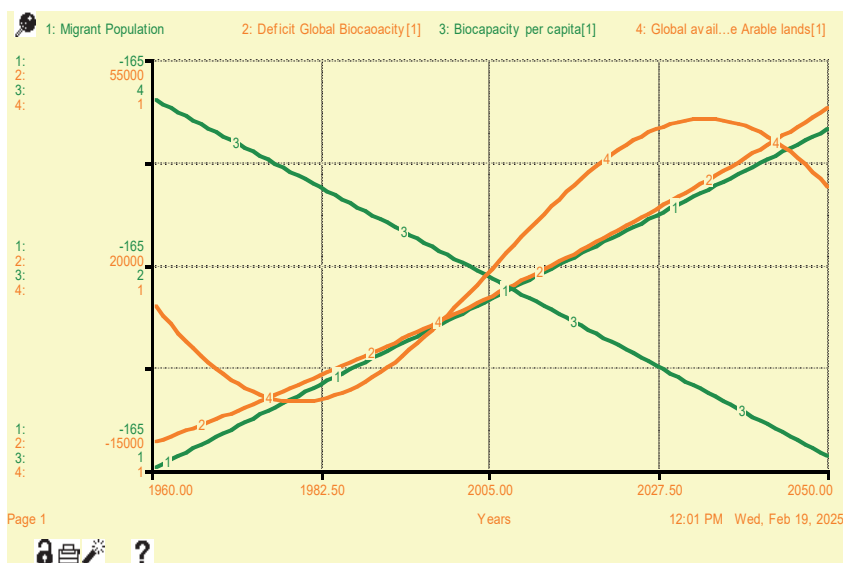


Figure 9 - Relationship between migrant population, the deficit in biological capacity, biocapacity per capita, and available arable lands

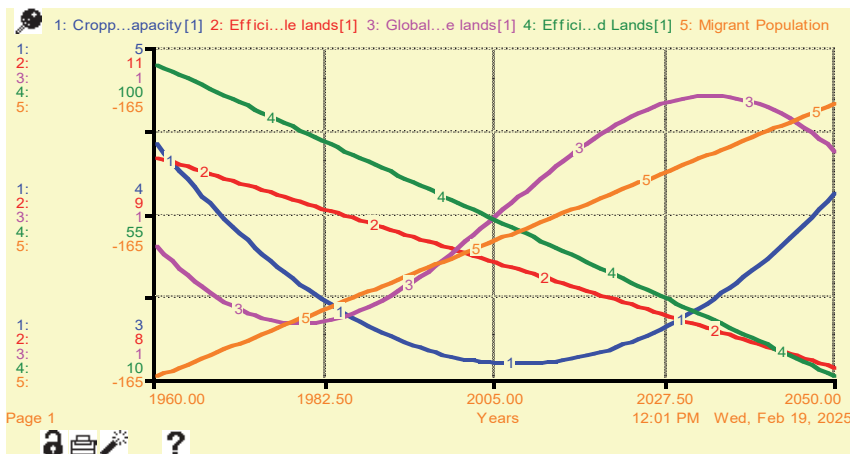


Figure 10 - Relationship between migrant population, crop capacity, efficiency of land productivity, and global available arable lands

## Conclusions

Why is Illegal migration and immigration problematic for countries or the ecological human imprint? First, economic growth and equity, the existing global economy with interdependence requires an integration to make long-term growth and, at the same time, requires regulation of the use of natural resources and balancing the human population; otherwise, the natural resources will become insufficient to the human living; secondly, to preserve the natural and environmental resources for future generations, we should find an economical solution that is important to reduce resource consumption in which we live. Otherwise, disaster will prevail; third, Social development, as everyone needs work, food, education, energy, health care, and water. In addressing these needs, the global community must also ensure that the rich fabric of cultural and social diversity is respected, the workers' rights are respected, and all members of society are empowered to play their part in determining their future. Accordingly, the report stressed the close link between economic and social development and environmental preservation. It pointed out that it was impossible to implement a sustainable development strategy without considering the development requirements of economic, social, and ecological aspects (Hines, 2018).

The most essential thing to consider is why migrants in the youth age want to leave their homelands. It is because they are earning low wages and working more hours to survive. Furthermore, they think of finding places to

earn better salaries and better lives to form families. On the other hand, other types of immigrants are leaving their homelands because of the kind of discrimination and political issues they are living on. Further, religious migrants want to change the demographics of other countries to occupy their resources and gain powerful strength. Moreover, the clustering of migrants and ideologies is now the norm to occupy other countries' resources and change the demography of different countries to enforce their ideologies and patterns of life, particularly in areas or places such as the US and Europe. The serious problem of clustering migrants in a specific location will make it impossible to reverse the situation because the people's culture cannot be altered or changed. Furthermore, the clustering of migrants makes it mostly impossible to integrate into societies, especially in closed-minded societies that are coming from.

The costs of migration to escape conflict have increased, mainly as a result of the construction of an increasingly stringent international migration regime; migrants' socio-economic background determined by control over or access to various forms of capital has become ever more critical in shaping the forms, patterns, and impacts of their movement (Van Hear, 2006).

The most important conclusion is that most migrants are leaving their native homelands because of economic and social pressures. Additionally, human beings must respect themselves by getting fewer babies to allow them to take care of their kids and their future and, consequently, the global environment.

Finally, to summarize, the positive and negative consequences of immigration and migration are 1) improvement of career opportunities for poor migrants in their new places; 2) increase in the highly skilled laborers; 3) changes in the demography and the structures of human population in the countries receiving the migrants; 4) increase of some enforcing the ideologies of the migrants to their new places which can create different conflicts and can cause antagonisms and division between the people living in one place; and 5) remittance of funding from high standard of living to low standard of living countries or from high-income to low-income countries.

Final thoughts on migration-immigration and ecological impacts are 1) the importance of humans understanding the impacts of increasing the human population against the balance of availability of natural resources to support the survival of humans, biological organisms, and other biological systems; 2) the importance of humans to understand the requirements of survivals and their role in making the balance between humans and the natural resources; 3) importance of humans to understand the consequences of their action in increasing the human population; 4) reduction of the causes of conflicts and contradictions between all humans living on this planet

otherwise, the planet will be in the destruction, and no one survives; 5) the governments should understand the psychological behavior of the humans to develop laws and form better understanding of the human life and 6) the humans should change their thoughts in many issues to support the peace, reduction of poverty, and increase humanity behavior globally.

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# *Neuromarketing and Sustainability: Understanding Implicit Bias to Promote Sustainable Eating Habits*

by *Alessandra Cecilia Jacomuzzi\**, *Christine Mauracher°*, *Eleonora Brotto<sup>^</sup>*

## *Abstract*

This study aims to evaluate the added value of neuromarketing techniques, specifically the Implicit Association Test (IAT), in analyzing consumer implicit biases toward sustainability foods, particularly insects. While edible insects are part of the culinary tradition in many Eastern countries, their consumption remains limited in Western cultures. Despite the well-known environmental and sustainability benefits of such foods, various studies have demonstrated that strong cultural barriers hinder their adoption.

By testing 200 participants through explicit questionnaires and the IAT, this research highlights the differences and convergences between these two methodologies in understanding consumer perceptions of edible insects. The results reveal a convergence between explicit and implicit attitudes, emphasizing the strength of implicit biases. The IAT proves to be a fundamental tool in accessing the unconscious dimensions of perception, providing valuable insights for marketing strategies aimed at promoting sustainable food choices.

**Keywords:** Food sustainability, Edible insects, Entomophagy, Psychological barriers, Neuromarketing, Implicit association test

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## Introduction

Food sustainability has emerged as one of the most pressing global challenges of the 21st century. Projections indicate that the global population will exceed 9 billion by 2050, driving an escalating demand for protein sources and exerting unsustainable pressure on natural resources (FAO, 2013). Meat production, the dominant protein source in many regions, is particularly resource-intensive, requiring significant amounts of water, land, and other inputs, while contributing disproportionately to greenhouse gas emissions. In light of these concerns, the identification and adoption of sustainable alternative protein sources have become a critical priority on a global scale.

Edible insects represent a promising response to these challenges. They are highly nutritious, offering a rich source of proteins, vitamins, minerals, and essential fats, and their farming practices are substantially more sustainable than those of conventional livestock (Ceriani, 2018; Ordoñez-Araque, 2021). For instance, insect farming requires up to 12 times less feed to produce one kilogram of protein compared to cattle and generates a significantly lower carbon footprint (Van Huis *et al.*, 2013). Additionally, insects can be farmed using agricultural by-products, contributing to the reduction of food waste (EFSA Scientific Committee, 2015).

Despite these benefits, the acceptance of entomophagy – the practice of consuming insects – remains limited in Western countries. This stands in stark contrast to cultures in Asia and Africa, where insects are traditionally regarded as a normal component of the diet (Milani *et al.*, 2020). The reluctance of Western consumers is frequently attributed to cultural and psychological factors, including feelings of disgust, fear, and a general unfamiliarity with insects as food (Milani *et al.*, 2021). The challenge of promoting sustainable innovations such as edible insects parallel the difficulty in enhancing public trust in vaccines, where implicit and explicit perceptions often conflict, influencing acceptance (Jacomuzzi, 2024, Jacomuzzi 2022). Understanding these dynamics is critical to designing interventions that address both conscious attitudes and unconscious biases.

Research on consumer behavior toward novel foods, such as edible insects, has traditionally relied on explicit methods, including questionnaires and interviews. These approaches focus on consciously articulated attitudes and preferences. However, such methods are constrained by significant limitations.

Firstly, the phenomenon of social desirability bias (Edwards, 1957; Grimm, 2010) can substantially influence responses. Participants may, knowingly or unconsciously, provide answers that align with socially

acceptable norms rather than reflect their true attitudes and beliefs. This effect is particularly pronounced in contexts related to sustainability, where social values and norms heavily shape declared behaviors.

In an era of growing awareness around environmental sustainability, social expectations play a pivotal role in shaping consumer-reported attitudes. For instance, when questioned about adopting sustainable practices or embracing innovative food sources such as edible insects, participants are likely to provide responses that reflect moral or socially desirable positions rather than their actual preferences or intentions. This discrepancy can result in an overestimation of consumers' willingness to adopt sustainable eating habits.

Moreover, many food-related decisions are influenced by automatic and unconscious processes (Köster, 2009). These processes are inaccessible through traditional explicit methods. Disgust, for instance, is a primary emotion triggered by stimuli perceived as contaminating, dangerous, or culturally inappropriate. From an evolutionary perspective, such responses are adaptive, protecting individuals from potentially harmful substances such as spoiled or toxic foods. However, in modern contexts, disgust may be elicited by elements that pose no actual risk but are culturally deemed unacceptable. In the case of edible insects, this reaction is particularly pronounced in Western cultures, where insects are not traditionally part of the diet. Despite the nutritional and environmental advantages of insects, the automatic disgust response represents a substantial psychological barrier to their acceptance. This response is often so deeply ingrained that consumers are unable to rationalize their rejection, resulting in a disconnect between their consciously stated support for sustainability and their implicit negative reactions.

In this context, neuromarketing offers innovative tools for analyzing consumer behavior. Among these, the Implicit Association Test (IAT) stands out for its ability to measure automatic associations between conceptual categories (e.g., “insects”) and emotional attributes (e.g., “disgusting” or “appetizing”). By recording reaction times and errors, the IAT identifies the ease with which participants associate specific categories with positive or negative emotions, providing a unique window into their unconscious processes (Greenwald *et al.*, 1998).

The present study explores the role of the IAT in examining perceptions related to entomophagy. The research builds on the premise that the acceptance of novel foods requires communication strategies that target not only explicit attitudes but also, and more importantly, implicit associations (Milani *et al.*, 2021). Only by addressing the strength of automatic associations that influence behavior can meaningful changes be achieved.

This study seeks to investigate the depth of implicit biases by measuring the extent to which consumers associate insects with negative emotions. Additionally, the research compares explicit self-reported attitudes with implicit biases identified through the IAT to uncover potential discrepancies. The primary objective is to examine the conscious and unconscious associations related to edible insects to gain deeper insights into the psychological barriers hindering their acceptance as a viable food source.

## **Materials and Methods**

This study employed an explicit questionnaire to gather self-reported data, complemented by the Implicit Association Test (IAT) to assess implicit biases through reaction time measurements. Both tools were administered entirely online. Given the well-established validity of IAT data collected on the Qualtrics platform (Carpenter, 2019), this platform was used to facilitate data collection for both the questionnaire and the IAT.

### *Participants*

The sample consisted of 200 participants recruited via social media, university mailing lists, and online research platforms. Inclusion criteria were deliberately kept simple to ensure a diverse sample: participants had to be between 18 and 55 years old and have a stable internet connection to complete the test. No specific requirements were set for gender, education level, or familiarity with sustainable foods.

Before participating, all subjects were required to read and approve an informed consent form, which clearly explained the study's objectives, data collection procedures, and the anonymous handling of their data.

### *Survey*

The questionnaire was divided into three main sections, each designed to gather specific data related to consumer perceptions, knowledge, and sociodemographic characteristics regarding insect-based foods.

#### **Section 1: Evaluation of Food Preferences**

In the first section, participants were presented with two questions accompanied by images of three different types of protein bars (first question) and three different types of chips (second question). Each option was labeled with letters A, B, and C, and the product packaging was

specifically designed to be colorful and visually appealing to attract attention.

Participants were not informed about the origin of the products in advance, apart from the information provided on the labels. To avoid biased responses, no details about the ingredients, including the presence of insects, were disclosed during the introductory phase.

The three options presented for each food category were characterized as follows:

**Products containing insect-based ingredients with explicit packaging:** These products featured stylized images of insects and labels such as “Cricket Protein Bar” or “Eat What Bugs You,” making the presence of insects as a main ingredient clear.

**Products containing insect-based ingredients with subtle packaging:** These products mentioned the presence of insects only in the ingredients list, using less conspicuous terms like “insect flour,” and employed visual messaging designed to downplay the insect content.

**Products without insect-based ingredients:** These products were traditional foods with no insect-derived ingredients.

Participants were asked two questions:

“How likely are you to eat these protein bars?”

“How likely are you to eat these chips?”

Responses were collected using a four-point Likert scale (very likely, likely, unlikely, very unlikely), avoiding neutral options to encourage more decisive evaluations.

## **Section 2: Knowledge and Attitudes Toward Insect-Based Foods**

This section included a qualitative investigation through multiple-choice questions aimed at exploring participants' knowledge of insect-based foods and their consumption habits.

The first question asked: “Have you ever eaten insect-based food?” Participants who answered affirmatively proceeded with a series of questions exploring the context and frequency of consumption. These included:

“What motivated you to eat insects?” with four response options: curiosity, sustainability, cultural influence, or health-related factors.

“Do you regularly consume insect-based food?” with response options limited to “yes” or “no,” distinguishing between occasional and habitual consumers.

For those who had never eaten insect-based food, the reasons for refusal were explored with options such as disgust, lack of opportunity, or doubts about food safety. Subsequently, participants were asked: “Would you like to try them in the future?” with three possible responses: “yes,” “maybe,”

“no.” Finally, participants were queried on the main factors that might encourage them to try insect-based foods in the future, such as sustainability or curiosity.

### **Section 3: Sociodemographic Survey**

The final section collected participants' sociodemographic data, including gender, age, and education level. This survey aimed to analyze potential correlations between sample characteristics and the perceptions or preferences expressed in the previous sections.

#### *Implicit Association Test (IAT)*

The Implicit Association Test (IAT) was designed to assess implicit associations between emotions (pleasure and disgust) and food categories (insect-based foods and non-insect-based foods). The test was divided into four main blocks, each preceded by a brief training phase to ensure participants understood the task.

**Emotion Categorization:** In the first block, participants categorized words associated with positive emotions (e.g., “delicious,” “appetizing”) or negative emotions (e.g., “vomit,” “rotten”). Responses were provided by pressing a specific key: the “E” key for negative emotions and the “I” key for positive emotions. This block aimed to familiarize participants with the emotion-based categorization task.

**Food Category Categorization:** In the second block, participants categorized food items into two groups: insect-based foods (e.g., “chocolate-covered crickets,” “fried grasshoppers”) and non-insect-based foods (e.g., “chicken,” “pizza”). Again, participants used the “E” and “I” keys to make their selections. This task established an initial association between the two food categories and their corresponding responses.

**Verbal Emotion-Food Combination:** In the third block, emotions and food categories were combined in verbal form. Participants were presented with words representing positive or negative emotions alongside words indicating insect-based or non-insect-based foods. For example, “delicious” and “chocolate-covered crickets” might share the same response key, while “vomit” and “chicken” shared the other. This block measured implicit associations between emotions and foods in verbal form.

**Visual and Verbal Stimuli Combination:** The fourth block combined visual and verbal stimuli. Participants were shown a mix of words related to emotions and images of insect-based or non-insect-based foods. This block aimed to investigate whether visual stimuli reinforced or altered the implicit associations observed in the previous blocks.



Participants were instructed to respond as quickly and accurately as possible. The total duration of the IAT was approximately 10–15 minutes. Results were analyzed by calculating d-scores, which reflect the strength of implicit associations. Positive scores indicated a stronger association between non-insect-based foods and positive emotions, while negative scores indicated a stronger association between insect-based foods and positive emotions.

## Results

The data collected were analyzed using SPSS software to examine explicit and implicit biases toward insect-based foods. The results are presented across three key areas: food preferences, familiarity and barriers to consumption, and IAT outcomes. A summary is provided at the end of each section for clarity.

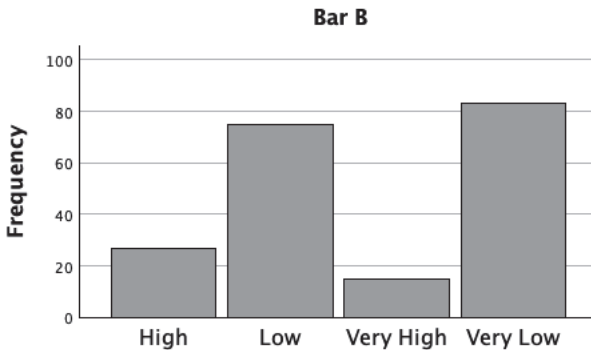
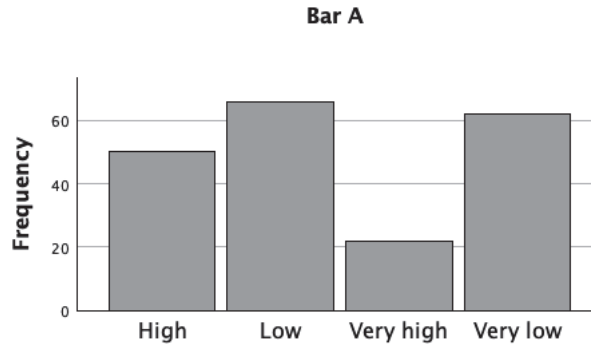
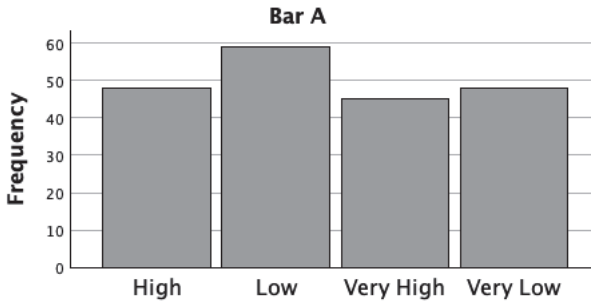
### *1. Food Preferences*

This section of the questionnaire aimed to explore participants' preferences for insect-based foods compared to traditional options, with a specific focus on the role of packaging.

**Protein Bar A:** Composed of bananas, chocolate, and insect flour, with yellow packaging. Responses were almost evenly split, with 93 favorable and 107 unfavorable. This suggests slight skepticism despite the product's innovative nature.

**Protein Bar B:** A high-protein bar without insect ingredients received moderate interest, with participants expressing limited willingness to try it, possibly reflecting a general aversion to high-protein products.

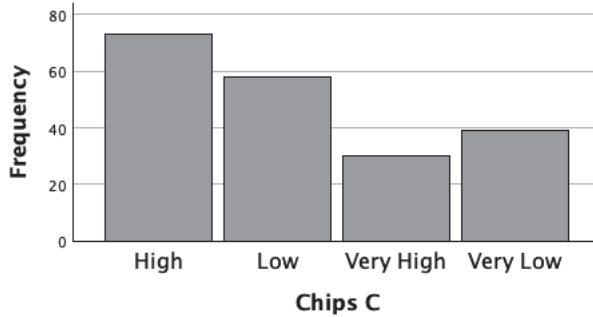
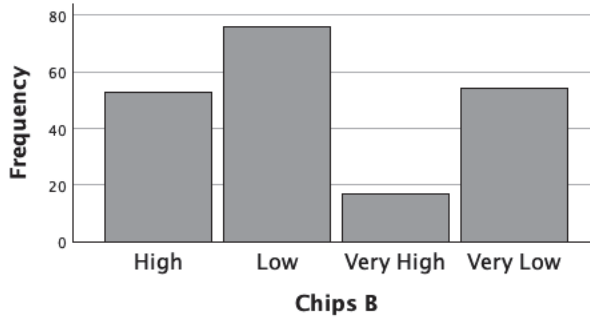
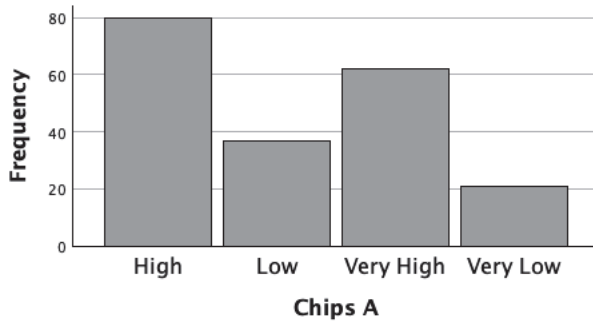
**Protein Bar C:** Also insect-based, featuring stylized insect imagery on the packaging, saw a significant rejection rate, with only one in four participants willing to try it, reflecting strong cultural resistance.



**Chips A:** Classic chips received overwhelmingly positive feedback, indicating strong familiarity and acceptance.

**Chips B:** Featuring insect-themed packaging, these chips faced skepticism.

**Chips C:** Pizza-flavored chips made with insect flour saw a balanced response, mirroring the results for Protein Bar A.



**Summary:** The analysis highlights the critical role of packaging and visual representation in influencing food preferences. Products with explicit insect references struggled to gain acceptance, underscoring cultural and psychological resistance.

## 2. Familiarity and Barriers to Consumption

This section examined participants' familiarity with insect-based foods and the barriers to their consumption.

**Previous Experience:** Only 13 participants (6.5%) reported having consumed insect-based foods, compared to 183 who had not. Common reasons for non-consumption included disgust (38.8%), lack of opportunity (22.9%), misinformation, and fear.

	Frequency	Percentage
Disgust	127	43.5%
Lack of opportunity	75	25.7%
Don't know where to buy	41	14.1%
Misinformation	36	12.3%
Fear	35	12.0%
Morality	6	2.0%
Lack of alternatives	2	0.7%
High price	1	0.3%

**Future Intentions:** When asked, “Would you eat insect-based food in the future?”, responses were divided: 35.8% said “no,” 27.3% said “yes,” and 36.9% responded “maybe,” indicating conditional openness.

**Motivations:** Among those who had tried insect-based foods, curiosity (57.1%) was the most cited reason, followed by cultural influences and sustainability perceptions.

**Summary:** Familiarity with insect-based foods remains low, with disgust and lack of opportunities serving as major barriers. However, conditional openness suggests that targeted education and expert recommendations could encourage adoption.

### 3. Sociodemographic Analysis

The sociodemographic analysis did not reveal gender differences in whether participants had tried or were willing to try insect-based foods. Similarly, no differences were observed based on education level (Chi-square test,  $p = 0.362$ ).

Among women, 99.6% had never tried insect-based food, compared to 89.2% of men. The Chi-square test indicated no significant difference ( $p = 0.078$ ).

Regarding future willingness to try insect-based foods:

Women: 47.37% answered “no,” 34.21% answered “maybe,” and 18.42% answered “yes.”

Men: 45.45% answered “no,” 37.88% answered “maybe,” and 16.67% answered “yes.” In this case, the Chi-square test revealed a statistically significant difference ( $p < 0.001$ ) in responses between men and women.

### 4. IAT Results

The IAT evaluated implicit associations between emotions (positive and negative) and food categories (insect-based and everyday foods), focusing on response accuracy, reaction times, and patterns of association.

**Negative Emotion/Insect-Based Foods:** Participants made 97 correct categorizations out of 100, with only 3 errors, indicating a highly stable and automatic association between insect-based foods and negative emotions.

**Positive Emotion/Insect-Based Foods:** Participants experienced significant difficulty, with only 55 correct responses out of 100 and 45 errors, reflecting a strong implicit bias against associating positive emotions with insect-based foods.

**Positive Emotion/Everyday Foods:** Participants exhibited high accuracy, with 98 correct responses out of 100 and only 2 errors, demonstrating a natural and intuitive association between everyday foods and positive emotions.

**Negative Emotion/Everyday Foods:** Participants showed greater difficulty associating negative emotions with everyday foods, with 66 correct responses and 34 errors, suggesting incongruence.

**Reaction Times:** Reaction times provided additional insights into the strength of associations:

Category	Mean Reaction Time (ms)	Standard Deviation (ms)
Everyday food / Positive emotion	594.81	45.41
Everyday food / Negative emotion	801.12	47.68
Insects / Positive emotion	803.24	54.21
Insects / Negative emotion	605.43	44.21

The results show that participants were significantly faster at associating insect-based foods with negative emotions (605.43 ms) than with positive emotions (803.24 ms). Conversely, everyday foods were more easily and rapidly associated with positive emotions (594.81 ms) than with negative emotions (801.12 ms). These findings highlight the deeply ingrained and automatic nature of negative associations with insect-based foods.

**Chi-Square Analysis:** The Chi-square test for response accuracy across all IAT conditions revealed significant differences ( $p < 0.001$ ):

**Positive Emotion/Insects vs. Positive Emotion/Everyday Foods:** Participants exhibited significantly greater difficulty associating positive emotions with insect-based foods compared to everyday foods ( $p < 0.001$ ).

**Negative Emotion/Insects vs. Negative Emotion/Everyday Foods:** Negative associations were significantly stronger and faster for insect-based foods compared to everyday foods ( $p < 0.001$ ).

**Overall Associations:** Aggregated across all categories (positive/negative and insect/everyday), Chi-square analysis showed that the differences in implicit associations were statistically significant ( $p < 0.001$ ).

**D-Score Calculation:** To quantify the strength of implicit biases, a D-score of 4.17 was calculated, reflecting a substantial bias favoring negative associations with insect-based foods. This score underscores the participants' difficulty in associating positive attributes with insects, indicating that these biases are deeply ingrained and automatic.

**Summary:** The IAT results reveal a strong implicit association of insect-based foods with negative emotions, evidenced by higher error rates, slower reaction times, and a high D-score. These findings suggest that unconscious biases against insect-based foods are stable and require targeted interventions to address.

## Discussion

The results obtained from the explicit questionnaire and the IAT highlight the effectiveness of implicit measurement techniques. The IAT data reveal a strong implicit negative association with insect-based foods. This negative association is evidenced not only by the high number of errors in the categorization task of positive emotions paired with insect-based foods but also by the slower reaction times. Conversely, the rapid and accurate response times in categorizing negative emotions associated with insect-based foods confirm that these negative associations are particularly stable. This finding demonstrates that insects trigger an automatic and immediate negative response, which is difficult to modify through rational processes.

The results align with previous studies (Milani *et al.*, 2020; Van Huis *et al.*, 2013), which attribute resistance toward insects to psychological and emotional factors, such as disgust, rooted in cultural and perceptual barriers. As observed in the adaptation to distance learning during the pandemic, psychological resistance and cultural norms significantly shape the acceptance of new paradigms (Jacomuzzi *et al.*, 2023, Milani *et al.*, 2022). Similarly, promoting sustainable food sources like insects requires addressing deeply ingrained societal and psychological barriers.

The IAT results further highlight how these barriers manifest at an implicit level, underscoring the need for targeted interventions. Both the questionnaire and the IAT reveal a negative perception of insect-based foods, but the IAT underscores a much stronger implicit bias. While the questionnaire suggests a moderate openness to future tasting, the strength of the implicit associations revealed by the IAT indicates that this openness

may not translate into actual behavior. This demonstrates the critical role of unconscious biases in shaping decisions, suggesting that rational attitudes captured by explicit methods may be insufficient to overcome deeply ingrained negative associations.

These findings confirm that explicit attitudes, often influenced by factors such as social desirability or context, provide only a partial understanding of consumers' real perceptions. As shown in the literature (Greenwald *et al.*, 1998; Nosek *et al.*, 2011), the IAT is a crucial tool for investigating unconscious processes, which play a key role in food-related decisions, especially those involving sustainable options.

The findings have important practical implications for communication and marketing strategies aimed at promoting the acceptance of insects as a sustainable food source.

Effective communication strategies play a pivotal role in bridging the gap between implicit biases and consumer acceptance of novel foods, such as insect-based products. Previous research has highlighted the importance of leveraging human-machine interaction to tailor messaging that resonates with diverse consumer groups, ultimately facilitating behavior change (Jacomuzzi *et al.*, 2024). Given that negative implicit associations are ingrained and automatic, it is essential to design interventions targeting the unconscious level, reducing negative biases through specific strategies, such as:

**Minimizing the visual aspect of insects:** Offering transformed products (e.g., protein bars, flours) instead of whole insects may reduce the automatic activation of disgust.

**Emphasizing environmental and nutritional benefits:** Clear messages about the sustainability and health advantages of insects could encourage a cognitive restructuring of implicit perceptions. Interactive and shareable digital media have been shown to influence consumer behavior effectively by engaging audiences on an emotional level (Bruno *et al.*, 2023). Leveraging these tools could be a game-changer in reshaping perceptions of insect-based foods, emphasizing their benefits in innovative and engaging formats.

**Gradual exposure techniques:** Starting with transformed products integrated into daily diets could reduce automatic negative associations over time.

## Conclusions

This study has demonstrated how neuromarketing techniques,

particularly the IAT, are essential tools for understanding and addressing implicit resistance to innovative foods such as edible insects. The results highlight that while consumers may express openness toward the idea of consuming insects, their unconscious biases reveal a deeply rooted negative association that constitutes a significant barrier.

Neuromarketing techniques allow for overcoming the limitations of explicit questionnaires, providing valuable insights into consumers' unconscious perceptions. This approach is critical in the context of sustainability, as it enables the design of communication and marketing strategies that operate on both rational and emotional levels. Recent studies show that tools like the IAT can provide a deeper understanding of the unconscious factors influencing consumer decisions (Carpenter *et al.*, 2019; Ordoñez-Araque *et al.*, 2021). For example, research by Köster (2020) has highlighted how automatic and unconscious processes play a fundamental role in food preferences, often in contrast with conscious declarations.

Interventions such as product reformulation, raising awareness of environmental benefits, and gradual exposure to novel foods can help reduce negative implicit biases and promote a transition toward more sustainable food choices. Specifically, product reformulation that conceals the visual aspect of insects through transformed foods has been shown to significantly reduce the activation of negative emotions linked to disgust (Ceriani, 2020). Additionally, educating consumers on the environmental benefits of insects, such as their lower ecological impact compared to conventional meat, has been identified as an effective strategy to positively influence perceptions (Van Huis *et al.*, 2021).

In a global context characterized by increasing pressure on natural resources, integrating innovative approaches like neuromarketing into food policies and communication strategies is crucial. Only through a profound understanding of the implicit dynamics driving consumer decisions will it be possible to promote the acceptance of sustainable foods and thereby contribute to global goals of environmental sustainability and food security. The ability of neuromarketing to uncover unconscious associations that hinder behavioral change represents a critical added value in tackling global challenges such as climate change and food security (EFSA Scientific Committee, 2021; Ordoñez-Araque *et al.*, 2021).

This study represents a preliminary exploration of the implicit biases and barriers to the acceptance of insect-based foods, leveraging neuromarketing techniques to uncover unconscious associations. While the findings provide valuable insights, there are certain limitations that should be acknowledged to contextualize the results and guide future research.



## Discussing Limitations and Future Directions

This is a preliminary study that highlights certain limitations but also provides insights for future research. One notable limitation lies in the sample's representativeness. Participants were primarily recruited through social media and digital platforms, which may not fully capture the diversity of the broader population. As a result, the findings might not be entirely generalizable across different demographic or cultural groups. The study may also be influenced by self-selection bias. Because participants voluntarily engaged with the research, it's possible that the sample disproportionately included individuals already interested in sustainability or open to novel food concepts, potentially skewing the results. The study's focus on insect-based foods provided valuable insights into a specific case study. However, this narrow focus does not encompass the broader range of challenges associated with other categories of novel foods, leaving room for further exploration.

The methodology presents another challenge. While the Implicit Association Test (IAT) is a powerful tool for uncovering unconscious associations, it has its limitations. Factors such as participants' familiarity with the testing interface or external distractions could influence reaction times. Moreover, the study did not employ longitudinal measures, making it difficult to assess whether sustained interventions might shift implicit biases over time. Finally, the study largely concentrated on implicit and explicit biases, without accounting for additional contextual factors. Elements such as socio-economic status, dietary habits, or exposure to media could significantly influence attitudes toward insect-based foods, yet these were not explored.

To build on this research, future studies should address these limitations and expand the scope of inquiry. Efforts should be made to include participants from a wider range of backgrounds to ensure a more representative population. Future research could adopt longitudinal designs to assess the long-term effects of marketing strategies and interventions on implicit biases. Examining factors such as cultural background, economic considerations, and environmental awareness could offer a richer understanding of consumer attitudes. Biases toward insect-based foods should be compared with attitudes toward other novel food types to identify overarching patterns and specific challenges. By addressing these areas, future research can build a more nuanced and actionable understanding of how to encourage sustainable food choices and overcome psychological and cultural barriers.

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# *Sustainable Development Strategies in Organizational Management*

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## *Abstract*

The research examines the impact of implementing sustainability strategies on organizational performance in companies across countries. The paper uses econometric modelling, regression analysis and case study analysis to examine how regulatory frameworks, technological infrastructure, market environment, and social environment culture influence the relationship between sustainability strategies and performance indicators. The results show that implementing sustainable practices increases economic performance by 25% and reduces energy costs by an average of 18%. Employee satisfaction increased by 15% in companies that implemented sustainability strategies. The study confirms that digital technologies accelerate the integration of sustainable practices, ensuring their scalability. The findings can be applied across a range of industries, including the improvement of strategic planning and sustainability policymaking.

**Keywords:** sustainable development strategies, organizational performance, econometric analysis, technological infrastructure, regulatory frameworks, sustainability innovation.

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## Introduction

The modern global economy is characterized by a dynamic environment with sustainable development strategies (SDS) increasingly integrated into organizational management, considered a strategic priority for enterprises seeking to achieve long-term growth and sustainability. SDS is becoming an important tool in improving economic, social and environmental outcomes as organizations accelerate the alignment of their activities with the sustainable development principles (Rendtorff, 2019). However, the implementation of sustainable development in decision-making processes addresses the above-mentioned global challenges, also contributing to the improvement of the competitive advantage of organizations through increased stakeholder trust and operational efficiency (Lopes and Gomes, 2022).

Although the number of studies on sustainable development practices has grown across sectors, a deeper quantitative understanding of the impact of SDS on organizational performance in different settings is required (Bratt, Sroufe, and Broman, 2021). Unfortunately, earlier research has tended to focus on limited qualitative case studies or specific industries, neglecting the impact of SDS on economic, social, or environmental performance at a larger macro scale. Furthermore, existing findings from other researchers are not sufficiently examined in the context of the regulatory environment, cultural aspects, and technological capabilities in different countries (Wilkerson and Trellevik, 2021).

Therefore, this paper has extended the research to previously unexplored aspects by analysing the impact of SDS on organizational performance in 15 companies from different countries between 2019 and 2023. Quantitatively, the study analyses key variables such as economic performance (EP), social outcomes (SO), and environmental performance (ENP). The study employs econometric modelling and regression analysis to investigate the interaction between SDS implementation and performance indicators with relevant country-specific context.

The main research objectives include:

1. Study the impact of SDS on economic, social, and environmental performance in different organizational and geographical situations.
2. Examine the role of regulatory framework and technological infrastructure in moderating these relationships.
3. Identify best practices and strategic recommendations for implementing SDS to optimize organizational performance.

This study provides a comprehensive understanding of the achievement of these goals and how sustainable development strategies can improve organizational governance and effectiveness in an unstable global environment.

## Literature Review

Sustainable development strategies enable long-term organizational growth and global transformation. This review brings together the studies on approaches to implementing sustainable practices across sectors, identifying key drivers, strategies, and outcomes. Rendtorff (2019) argues that integrating the Sustainable Development Goals (SDGs) into business models enhances economic sustainability and the achievement of social goals. This thesis is supported by Bratt, Sroufe, and Broman (2021), who emphasize the importance of sustainable supply chain management (SSCM), where sustainability becomes the foundation of competitiveness. However, Bratt, Sroufe, and Broman (2021) add that the impact of SSCM is most noticeable in logistics, while Rendtorff focuses more on overall corporate strategy.

Mahameed et al. (2023) draw attention to the role of sustainable practices in higher education in Arab countries, arguing that they enhance the reputation of institutions. Similarly, Farinha, Caeiro, and Azeiteiro (2019) focus on sustainable development strategies in Portuguese universities, but argue that these practices are of direct relevance for developing a sustainability-oriented workforce. These two studies reveal the interdependence between education and social responsibility, although Mahamed et al. place greater emphasis on social recognition, while Farinha, Caeiro, and Azeiteiro (2019) focus on economic consequences.

A study by Lopes and Gomes (2022) shows that Portuguese SMEs gain competitive advantages through innovative approaches to sustainability. Their findings are consistent with those of Bratt, Sroufe, and Broman (2021), but Lopes and Gomes (2022) emphasize the specific role of innovation in the context of SMEs, while Bratt, Sroufe, and Broman (2021) are more focused on large enterprises in the logistics sector. These approaches illustrate the complexity of implementing sustainable strategies, emphasizing the need to adapt to industry conditions and the social environment.

Félix et al. (2019) emphasize the importance of integrating sustainability principles into production processes, which contributes to improved product quality and environmental sustainability. This view is supported by Wilkerson and Trellevik (2021), who argue that combining sustainability approaches with systems thinking provides better innovative solutions. In contrast, Shrivastava et al. (2020) emphasize a global approach that covers different levels and scales, offering a broader view of the impact of sustainability. So, both sides agree on the importance of sustainability, but approach it from different perspectives.

Bennett et al. (2019) emphasize the need for the benefits of sustainability to be shared equitably across all groups in society, focusing on social

inclusion. In turn, González-Álvarez and Cabeza-García (2020) emphasize technological innovation as a key factor in increasing efficiency and reducing environmental impact. These two approaches reflect the difference between social and technological emphasis, although both confirm the importance of integrating sustainable development.

Jarmai (2020) distinguishes sustainability-oriented innovation as a source of strategic advantage and market differentiation. This position is complemented by Lopes et al. (2021), who indicate that companies with high innovation potential are better able to implement sustainability strategies, adapting to rapid changes in the global market. In contrast, Lopes et al. (2022) focus on open innovation in remote regions, emphasizing the need for international collaboration to overcome local constraints.

Arioli et al. (2022) argue that subscription business models can contribute to sustainability by reducing waste and increasing resource efficiency. This is supported by their research, which shows how subscription models support the principles of a circular economy. At the same time, Hossain (2020) agrees with this approach and points to the success of the sharing economy in promoting sustainable consumption patterns. He emphasizes the possible challenges associated with reliance on access to shared assets, which may limit the availability of these models in certain regions or sectors.

Xu et al. (2019) focus on the use of digital platforms and artificial intelligence (AI) to enhance sustainability in smart building ecosystems. They demonstrate how IoT technologies can optimize energy use and minimize waste. These findings are in line with Rachinger et al. (2019), who see digitalization as a driver for innovative business models that conserve resources and increase transparency in supply chains. However, Rachinger et al. (2019) focus more on production and logistics processes, which indicates the diverse areas of application of digital innovation.

Ferreira et al. (2021) provide a critical perspective on the sustainability of supply chains, especially in times of crisis such as a pandemic. They emphasize the importance of flexibility and collaboration, which is partly in line with the view of Cobra et al. (2021), who proposed a circular technology roadmap (TRM) as a tool to achieve sustainability. However, unlike Ferreira et al. (2021), who focus on adaptability, Cobra et al. (2021) emphasize the need for strategic planning to integrate circular economy principles in the long term.

In general, while there is a growing consensus in the literature on the importance of sustainable business models, there are different emphases on approaches to their implementation. Some authors, such as Arioli et al. (2022) and Hossain (2020), emphasize innovation in consumption, while others, such as Xu et al. (2019), Rachinger et al. (2019), and Cobra et al.



(2021), focus on technological solutions for resource management and efficiency. This diversity of perspectives emphasizes the complexity of integrating sustainable development into global business practices.

## **Method**

### *Research Design*

This study on the implementation of SDS in organizational management was conducted in three structured stages.

1. The preparatory stage involved the selection of key research variables, the analysis of relevant publications, and collection of preliminary data to determine the scope of the study. Economic performance (EP), social outcomes (SO), and environmental performance (ENP) were selected based on their relevance to sustainable development.
2. The stage of data collection and analysis provided for the data collection from 15 companies from different countries, representing different industries, at different levels of sustainable development implementation. Econometric modelling and regression analysis methods were used to assess the relationships between performance indicators with respect to SDS.
3. At the analytical phase involved a comprehensive detailed analysis and interpretation of the results. The studied experiences gave grounds to provide recommendations for optimizing SDS to improve organizational performance, taking into account the different contexts of different countries and sectors.

### *Data Selection*

Data selection was a key element of the methodology. The study selected 15 companies representing different countries and belonging to organizations that actively implement environmental practices. The initial sample included 100 potential companies, identified on the basis of data from global sustainability indices (World Bank, 2023; European Union, 2022; Research and Markets, 2022) and corporate sustainability reports (UK Department for Business, Energy and Industrial Strategy, 2022; US Department of State, 2022; International Monetary Fund, 2021; Financial Stability Board, 2020).

From this number of companies, 15 were selected through stratified random sampling, taking into account the following criteria:

1. Industry – preference was given to sectors with a high environmental impact (manufacturing, energy, agriculture).

2. Geographic location – representation of companies from developed countries (e.g., USA, Germany, UK) and countries with emerging economies (India, Brazil, South Africa) was ensured.
3. SDS implementation level – the sample includes companies with a high level of integration of environmental practices, as well as those at the initial stages.

This approach allowed for the formation of a representative sample for an in-depth analysis of the relationship between sustainable development and company performance. In addition, variability in the sample structure was ensured, covering different economic contexts and approaches to the implementation of environmental practices.

The data were collected from open sources such as annual corporate reports, industry publications, and global sustainability indices (e.g., Financial Stability Board, 2020; US Department of State, 2022). The indicators analysed included profitability, growth rates, employee satisfaction, community engagement, greenhouse gas emissions, and energy efficiency.

The selection of 15 companies was determined by the need to strike a balance between representativeness of the sample and the ability to conduct detailed analysis with the availability of the necessary data.

### *Research Methods*

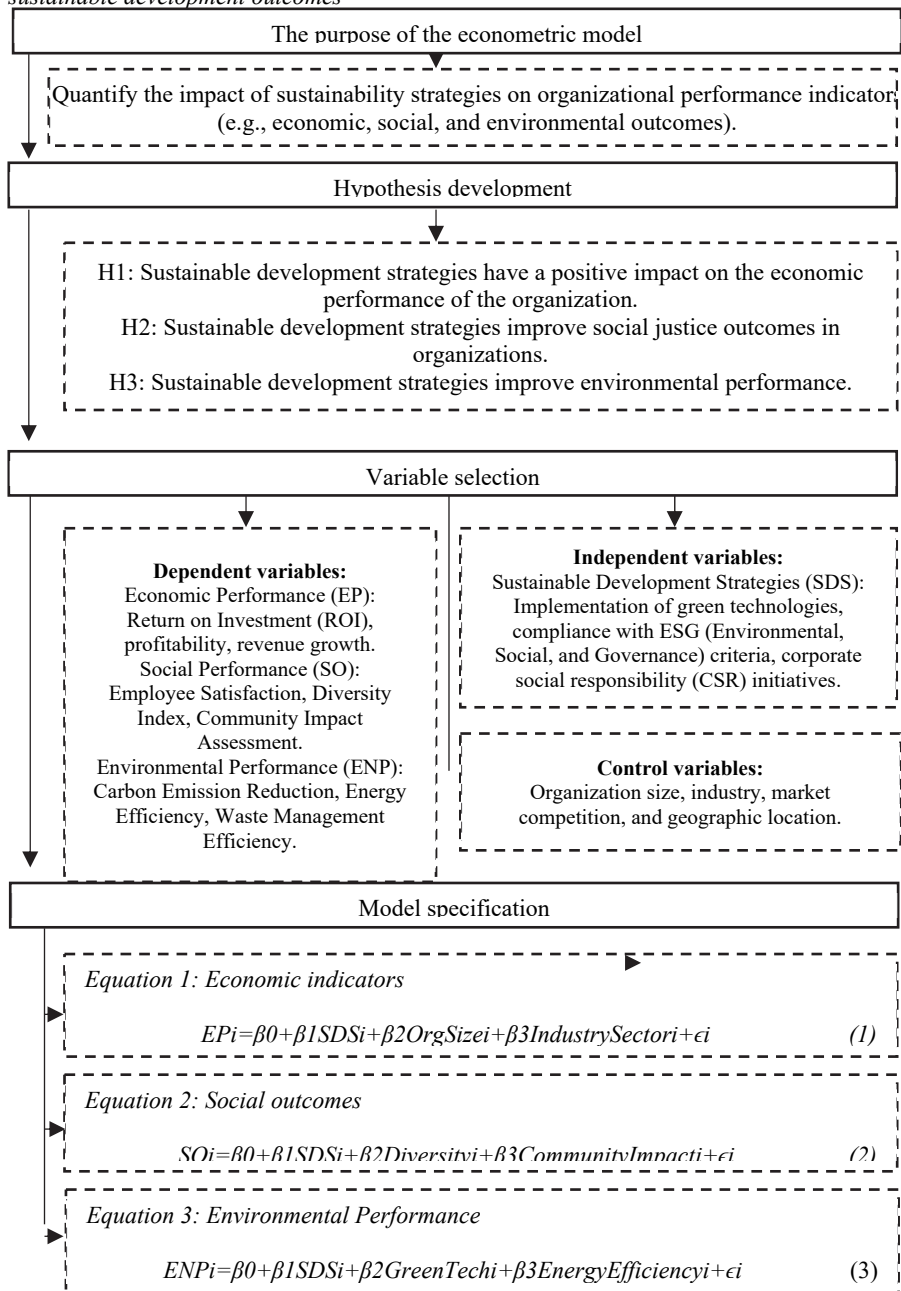
Econometric modelling and multiple regression analysis were used in this study to systematically and quantitatively examine the impact of SDS on organizational performance. An econometric model was developed to model the relationships between SDS implementation and three performance parameters. Together, company-specific factors are controlled to determine the impact of sustainability initiatives on EP, SO, and ENP. This approach allowed for a deeper understanding of the role of SDS in different organizational contexts.

This method was a multiple regression analysis that outlined the predictors of organizational performance, controlling for the influence of the regulatory environment and technological infrastructure. The conditions under which SDS has the strongest impact on performance and provides practical implications for managers and policymakers were identified.

By combining these quantitative methods, it was possible to examine the factors that influence sustainability outcomes across organizational and regional settings.

The development of an econometric model involves developing a framework that links organizational management practices to sustainability outcomes. A step-by-step guide to such a model is presented in Figure 1.

Figure 1 - Structuring an algorithm that links organizational management practices with sustainable development outcomes



Source: developed by the author

Explanation of the equations in Figure 1:

1. Equation 1. This equation models the economic efficiency of the company ( $EPI_i$ ) as a function of sustainable development strategies ( $SDSi_i$ ), organization size ( $OrgSize_i$ ), and industry sector ( $IndustrySector_i$ ). The economic indicators in the baseline scenario ( $\beta_0$ ) and unobserved factors are represented by the error ( $\epsilon_i$ ).
2. Equation 2. The social outcomes ( $SO_i$ ) are explained in this equation in terms of sustainable development strategies ( $SDSi_i$ ), the level of diversity of the initiative ( $Diversity_i$ ), and the company's impact on society ( $CommunityImpact_i$ ).  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  denote the contribution of each variable to the overall social outcomes, respectively.
3. Equation 3. The environmental performance ( $ENP_i$ ) is measured in this equation as the product of sustainable development strategies ( $SDSi_i$ ), the degree of green technology adoption ( $GreenTech_i$ ), and energy efficiency measures ( $EnergyEfficiency_i$ ). The coefficients of these predictors affect the environmental consequences.

## *Research Tools*

The data were analysed using statistical software; in particular Stata. The capabilities of econometric and regression software allowed for a detailed study of the interaction between SDS and performance indicators, and the results were provided with high accuracy and reliability. This methodological approach offered a framework for evaluating SDS and their impact on the organization, providing effective results for improving organizational management in different global contexts.

## **Results**

In the current environment, SDS is increasingly considered as key to an organization's success across three areas: economic, social, and environmental. The paper used the SDS framework to conduct a case study of 15 companies (Volkswagen, Bosch, Toyota, Sony, Apple, Walmart, Huawei, BYD, Tata Consultancy Services, Sun Pharma, Renault, EDF, Barclays, Tesco, Teva Pharmaceutical Industries Ltd.) across countries for 2019-2023 to examine the impact of SDS on key performance indicators. The study employed econometric models to compare investment in green technology, diversity initiatives and energy efficiency in terms of their contribution to EP, SO, and ENP. The findings provide regional and industry

insights, as well as show best practices and areas for improvement for a balanced sustainability agenda.

The study presents the results of an econometric model examining the impact of SDS on EP, SO, and ENP for 15 companies across countries for 2019-2023. Table 1 shows that Model 1 shows a significant positive relationship between SDS and economic performance. In addition, larger companies and companies organized in certain industry sectors show higher economic performance. Model 2 in Table 2 shows that SDS, diversity, and community impact are the most important performance factors affecting social outcomes. The results of Model 3 show that SDS, green technology adoption, and energy efficiency are key factors in improving environmental performance (Table 3).

*Table 1 - Model 1 (EP)*

<i>Item No.</i>	<i>Variable</i>	<i>Coefficient (<math>\beta</math>)</i>	<i>Standard error (Std. Error)</i>	<i>t-Statistic</i>	<i>p-Value</i>
1.	SDS	0.421	0.085	4.95	0.000
2.	OrgSize	0.302	0.056	5.39	0.000
3.	IndustrySector	0.215	0.098	2.19	0.031
4.	Constant	1.753	0.514	3.41	0.001

**Note:**  $R^2 = 0.68$ ; Adjusted  $R^2 = 0.65$   $R^2 = 0.65$

*Source:* developed by the authors using Stata.

*Table 2 - Model 2 (SO)*

<i>Item No.</i>	<i>Variable</i>	<i>Coefficient (<math>\beta</math>)</i>	<i>Standard error (Std. Error)</i>	<i>t-Statistic</i>	<i>p-Value</i>
1.	SDS	0.547	0.093	5.88	0.000
2.	Diversity	0.325	0.071	4.58	0.000
3.	CommunityImpact	0.389	0.064	6.08	0.000
4.	Constant	1.120	0.432	2.59	0.011

**Note:**  $R^2 = 0.73$ ; Adjusted  $R^2 = 0.71$

*Source:* developed by the authors using Stata.

*Table 3 - Model 3 (ENP)*

<i>Item No.</i>	<i>Variable</i>	<i>Coefficient (<math>\beta</math>)</i>	<i>Standard error (Std. Error)</i>	<i>t-Statistic</i>	<i>p-Value</i>
1.	SDS	0.618	0.074	8.35	0.000
2.	GreenTech	0.493	0.065	7.58	0.000
3.	EnergyEfficiency	0.428	0.052	8.23	0.000
4.	Constant	0.942	0.367	2.57	0.012

**Note:**  $R^2 = 0.79$ ; Adjusted  $R^2 = 0.77$

*Source:* developed by the authors using Stata.

Volkswagen and Bosch showed high economic and environmental indicators in Germany (Figure 2). They achieve such results due to their large investments in green technology and energy efficiency, which meet the country's strict environmental standards. In Japan, Toyota and Sony have similarly made progress on all dimensions thanks to cutting-edge innovation in the electronics and automotive sectors. These results reflect both government incentives and an organizational focus on sustainable manufacturing.

Apple and Walmart were two U.S. companies that achieved high results on social outcomes and moderate – on environmental outcomes. Employee satisfaction was increased by Apple's focus on workplace diversity and inclusion, while Walmart's community engagement initiatives improved social outcomes. Huawei and BYD have made significant environmental improvements in China by integrating renewable energy into their operations. However, economic performance lagged somewhat because of high initial costs.

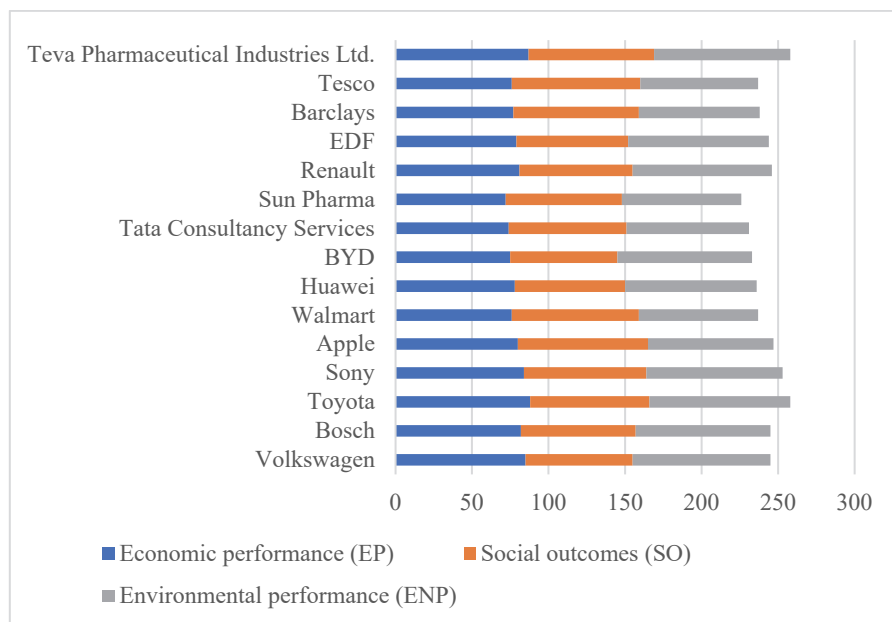
This argument can be supported by consistent improvements in social and environmental performance reported by Tata Consultancy Services (TCS) and Sun Pharma in India, suggesting that newly adopted SDSs are being applied in emerging markets. The results of these experiments point to long-term profitability potential even in the face of scalability issues and resource constraints. Renault and EDF have achieved strong environmental performance in France, as their efforts to develop renewable energy sources and their electric vehicle drive have placed them among the leaders in sustainability.

Barclays and Tesco demonstrated strong social performance through diversity and corporate social responsibility (CSR) initiatives. Finally, Teva Pharmaceutical Industries Ltd. in Israel has demonstrated balanced performance across all three dimensions, demonstrating a comprehensive commitment to sustainability.

This study shows that countries with strict environmental regulations – Germany, Japan and France – have the highest environmental performance. Renewable energy projects from companies such as Renault and EDF significantly improve environmental performance. In contrast, the US and the UK have strong social performance, as diversity and CSR are key to achieving higher scores on these aspects.

Emerging economies – China and India – are promising in environmental and social terms, but are hampered by higher implementation costs. These regions offer the potential for sustainable growth for companies such as Huawei and TCS as their strategies evolve.

Figure 2 - Analysis of the research results for the 15 studied companies



Source: Developed by the author based on World Bank data (2023).

Israel focused on all aspects of sustainability, and Teva Pharmaceutical Industries Ltd. combines excellently balanced performance across all three areas, being a model for others. The analysis shows that diversity is key to this, as companies use different approaches depending on local context and industry needs, and that there are significant benefits in all areas where SDS works well.

Table 4 provides information on country of origin, industry, investment in sustainability, key sustainability strategy and level of implementation of these strategies.

Table 4 - Data on companies and sustainability strategies

Item No.	Company Name	Country	Sector	Sustainability Investment (\$M)	Key Sustainable Development Strategy	Strategy Implementation Level (High/Medium/Low)
1	Volkswagen	Germany	Transport	1200	Transition to electromobility	High

2	Bosch	Germany	Industry	800	Reducing carbon footprint	High
3	Toyota	Japan	Transport	1500	Developing hybrid and hydrogen cars	High
4	Sony	Japan	Electronics	500	Energy efficiency in production	Medium
5	Apple	USA	Electronics	2000	Using renewable energy sources	High
6	Walmart	USA	Retail	700	Reducing food waste	Medium
7	Huawei	China	Telecommunications	600	Innovations for green infrastructure	Medium
8	BYD	China	Transport	1000	Mass production of electric vehicles	High
9	Tata Consultancy Services	India	IT	300	Environmental optimization of IT infrastructure	Medium
10	Sun Pharma	India	Pharmaceuticals	200	Reducing energy consumption in production	Low
11	Renault	France	Transport	1100	Circular economy in production	High
12	EDF	France	Energy	1700	Expanding green energy projects	High
13	Barclays	United Kingdom	Finance	400	Investing in green business	Medium
14	Tesco	United Kingdom	Retail	300	Reducing plastic in packaging	Low



15	Teva Pharmaceutical Industries Ltd.	Israel	Pharmaceuticals	1800	Sustainable development in the production of medicines, investment in environmentally friendly production processes	High
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*Source:* Developed by the author based on World Bank (2023).

Table 5 compares the implementation of sustainable development strategies by economic growth and key performance indicators.

*Table 5 - Data on comparative data*

<i>Item No.</i>	<i>Indicator</i>	<i>Large companies (≥1,000 employees)</i>	<i>Small companies (&lt;1,000 employees)</i>
1	Average economic growth (%)	6.5	3.2
2	Reduction in CO <sub>2</sub> emissions (%)	25	12
3	Increase in energy efficiency (%)	18	9
4	Employee satisfaction level	High	Medium

*Source:* Developed by the author based on World Bank (2023).

The analysis shows that large companies achieve higher efficiency in implementing sustainable development strategies compared to small enterprises due to significant investments and resources. However, smaller companies show progress in adapting to environmental challenges, especially in sectors with low barriers to innovation.

This study shows that there are tangible benefits of sustainable development strategies in improving organizational performance in economic, social and environmental aspects. A total of 15 companies from different countries and industries show that the SDS implementation improves local context and industry specifics through quality practices. Politicians and business leaders must encourage diversity, green technologies and make sustainability part of corporate governance to move in the right direction. Despite the difficulties, the company is on a positive trajectory in all aspects, and we believe that sustainability is not a moral

imperative – it is a strategic necessity for any company that wants to thrive in the current environment.

## Discussion

As sustainability becomes more pervasive, more industries are perceiving the integration of bioeconomy and circular economy practices as a key driver. According to Abad-Segura et al. (2021), these two approaches have been combined globally as a means of improving resource use, reducing waste, and promoting environmental sustainability. This study emphasizes how combining bioeconomy and circular economy can make industrial practices more efficient and sustainable. In our study, we also find that such strategies are important for reducing the environmental footprint in the agricultural and industrial sectors, which is consistent with the findings of Abad-Segura et al. (2021). However, we add that the growing importance of these practices requires not only technological innovation but also comprehensive socio-economic policies to ensure sustainable development.

Khoshnevisan et al. (2020) investigate the environmental life cycle assessments of biorecycling platforms that convert municipal solid waste into bioenergy and other valuable by-products. This study demonstrates that biorecycling can reduce fossil fuel use and contribute to the goals of a circular economy. Our findings are consistent with these results, as we also find that biorecycling plays an important role in reducing environmental risks, but requires significant investment for effective implementation in many regions.

Gomes et al. (2023) suggest that the organizational sustainability of a business should be aligned with the UN SDGs. They emphasize the importance of integrating sustainability into business models to achieve economic growth, environmental benefits, and social well-being. This is consistent with our findings, as we believe that sustainability strategies should not only be technical but also strategic for long-term success. However, we add that effective implementation of sustainability requires interaction with other strategic initiatives, such as innovative supply chain management.

Koldovskiy et al. (2024) examine how supply chain management can be a key factor in achieving sustainable resource use, in particular through logistics optimization and the use of renewable materials. We also confirm the importance of integrating sustainable practices into supply chains to achieve environmental goals, in particular in the context of resource optimization and carbon reduction. Furthermore, Kretov et al. (2023) determine the impact of market competition as a driver of innovation in

corporate lending. In the face of competition, companies adopt sustainable and efficient practices that are better for business and the environment. Our results are consistent with the findings of Koldovskiy et al. (2024) and Kretov et al. (2023), but we add that the effectiveness of such strategies depends largely on the level of technological and regulatory development in individual countries.

Green entrepreneurship is an important concept for sustainable development as it combines social and economic aspects of sustainability. This reflects the ideas of Shchokin, Soloviov, and Tantsiura (2024) who explore the role of sustainable practices in supporting national security. We believe that green entrepreneurship can be an important element of a sustainable development strategy to improve the economic situation and create new markets. This is supported by the findings of Shchokin, Soloviov, and Tantsiura (2024), who emphasize the role of sustainable business models for the development of national economies. Borodina et al. (2022) explore conceptual models of energy efficiency management that can reduce energy costs and help to achieve energy sustainability goals. Our study agrees with their findings as we also find that reducing energy consumption can significantly reduce companies' costs, but support from governments and the corporate sector is needed to achieve these goals.

Khang et al. (2024) use SWOT analysis to assess market opportunities and challenges from a global market perspective. They show how companies can adapt their sustainability strategies to achieve long-term success. This is consistent with our findings, as we also believe that sustainability strategies should consider risks and opportunities in global markets, particularly in the context of sustainability competition.

Shavarskyi et al. (2022) analyse how new technologies in the mining industry can reduce environmental footprints while supporting economic growth. We also argue that technological innovation can play a crucial role in achieving SDGs, particularly in resource-intensive sectors.

In conclusion, integrating the bioeconomy, circular economy and sustainable development is critical to building a sustainable future. As Abad-Segura et al. (2021), Khoshnevisan et al. (2020) and others noted, these approaches have great potential to achieve environmental, social and economic benefits. However, effective implementation of sustainable development requires collaboration between governments, businesses, and consumers to achieve global SDGs.

### *Limitations*

This study has several limitations:

1. The data used for the analysis may be incomplete, as some relevant information may be missing or unavailable.
2. The model focuses on selected variables only, omitting other potentially important factors such as labour practices or environmental impacts, which may limit the completeness of the analysis.
3. The sample includes only 15 companies from different countries, which may not fully capture the diversity of global sustainability practices, potentially affecting the generalizability of the results.

### *Recommendations*

The reliability of further studies can be increased through the recommendation to expand the sample size to a wider range of countries and industries in order to provide a more objective and comprehensive perspective on international sustainability practices. Furthermore, the inclusion of additional variables, such as workforce skill levels or environmental sustainability indicators, may provide a deeper understanding of the factors influencing organizational performance. It is appropriate to periodically revise and improve the econometric model to ensure that it continues to reflect changes in industry standards, technological advances, and regulatory changes. Such improvements will contribute to more effective and effective conclusions on sustainable management practices.

### **Conclusions**

Integrating sustainability practices into a company's operational and strategic framework is becoming vital in today's globalized economy. In general, this study focuses on the importance of implementing sustainable approaches to improve efficiency across various areas of activity. The findings show that companies with a more advanced technological structure and proactive sustainability policies have higher performance.

The paper provides empirical evidence of how integrating sustainability initiatives not only improves operational efficiency but also improves decision-making processes among managers. The results show that sustainability practices are positively correlated with organizational effectiveness, especially in companies with strong governance structures. However, organizations operating in regions with limited technological development find it difficult to fully benefit from sustainability initiatives.

Maximizing the business benefits of sustainability requires investment in technological development, improving regulatory frameworks, and creating a corporate culture that encourages responsible environmental and social decisions. Furthermore, international collaboration and knowledge sharing between countries are essential for organizations to remain competitive in an ever-changing global market in order to implement best practices.

Additional further research may focus on the expanded role of digitalization for sustainability and the broader implications for supply chain management. Furthermore, assessing sustainability practices across a group of individual sectors could provide a deeper understanding of how best to optimize organizational processes in a particular sector through resilience to global challenges.

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# *Financial Instruments that Ensure Food Market Sustainability*

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## *Abstract*

The aim of the research was to study financial instruments ensuring the food market sustainability in the face of economic and environmental challenges. The research employed the following methods: SWOT analysis, econometric, correlation, and regression analysis. The analysis of investment in agricultural technologies showed a significant increase in interest in innovations, in particular in response to global challenges, such as climate change. In particular, the use of IoT in agriculture has contributed to an increase in the yield of major crops such as wheat, corn, and soybeans. The study found that the use of financial instruments, such as grants, technical assistance, loan guarantees and equity investments, effectively reduces financial risks. A promising direction for further research is to study in more detail the effectiveness of the use of mixed financial instruments for the sustainable development of the agricultural sector.

**Keywords:** agricultural finance, financial instruments, credit guarantees, food security, market sustainability, agricultural technology.

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## Introduction

Food security is one of the main strategic goals pursued by governments around the world. In the current economic instability, climate change, crises, and political upheavals, the food market is becoming sensitive to any external and internal influences. At the same time, the stability of this market directly depends on the effective use of financial instruments that minimize the risks associated with fluctuations in food prices. They also help to respond to changes in supply and demand and the external economic situation. According to the Food and Agriculture Organization of the United Nations (FAO), more than 735 million people in the world faced hunger problems in 2023. This is 122 million more than in 2019, and mainly due to economic crises, conflicts, and climate change. Global food losses caused by market instability and logistical difficulties are estimated at \$400 billion annually. The presented data emphasize the relevance of research into financial mechanisms that can help to stabilize food markets and reduce the risks of food shortages.

The study is of particular importance because of the need to ensure access to food for all population groups, especially during economic crisis or in the event of natural disasters. Such instruments as state subsidies, support for agricultural investment, and agricultural risk insurance play an important role in stabilizing the market. Besides, the creation of favourable conditions for the development of financial mechanisms supports agriculture and food infrastructure. The researchers actively study financial mechanisms and models for supporting food security in the context of economic globalization. In particular, Humeniuk et al. (2021a) emphasize the importance of an integrated approach to financing the food sector and improving the conditions for sustainable agricultural development. Wattel et al. (2023) consider the possibilities of public investment for the development of infrastructure and ensuring the availability of food in view of climate change and global economic shocks.

In this context, Deng et al. (2023) and Shelenko et al. (2023) propose a mechanism for public management of the agricultural sector. It is based on the principles of agrarian protectionism, program-targeted regulation, self-financing, and efficient resource use. It is worth noting that the current situation requires states and international organizations not only to develop financial support instruments, but also to effectively implement them to ensure the stability of food markets. Increasing the role of financial instruments in the development of food security is extremely important in the context of strategic planning of agricultural policy (EU, 2021-2027). This requires taking into account the peculiarities of domestic and external food

markets and ways to minimize socio-economic consequences in crisis situations.

The aim of the research is to assess financial instruments that ensure food market sustainability in the face of economic and environmental challenges. The aim was achieved through the fulfilment of the following research objectives:

1. Identify the main financial instruments used to ensure food market sustainability.
2. Analyse the effectiveness of the application of financial mechanisms.
3. Develop proposals for improving financial instruments in the context of global and local economic challenges.

The novelty of this study is the integrated approach to assessing the effectiveness of financial instruments used to ensure food security during global crises. It is expected that the results of the study will identify the most effective financial mechanisms to support food security. They will contribute to the development of recommendations for their adaptation and implementation in the face of economic instability and climate change, as well as increasing the effectiveness of state support policies for the agricultural sector.

## Literature Review

The studies deal with various financial mechanisms that contribute to market stability, including government subsidies, investment, agricultural insurance, international financing, and strategic financial management. According to the research data, government subsidies and investment in agriculture are key tools for ensuring food market stability. Ashiq et al. (2023) emphasize the importance of creating an effective system of agricultural financing through subsidies that contribute to reducing production costs and increasing the availability of agricultural products. Cao et al. (2020) emphasize that government financing should be aimed not only at supporting production, but also at developing agricultural infrastructure, including logistics systems, storage, and processing of products.

However, there are a number of shortcomings in earlier studies. In particular, most studies focus on the positive impact of subsidies, but do not sufficiently analyse their long-term consequences, such as the possible creation of dependence of agricultural enterprises on state support. Furthermore, not all studies take into account the effectiveness of subsidies in different economic contexts. Some authors, such as Ostapenko (2021), argue that excessive funding can distort the market. At the same time, others,

in particular Hua et al. (2024), note that small and medium-sized enterprises (SMEs) in agriculture have limited opportunities for development without state support. Agricultural insurance is another important financial instrument. Guo et al. (2024) note that agricultural insurance becomes necessary to reduce the risks associated with crop losses in the context of global climate change and natural disasters. Moldavan et al. (2023) emphasize that stable insurance mechanisms reduce financial pressure on farmers and stimulate investment in agriculture.

However, the studies do not sufficiently address the issue of the accessibility of insurance programmes for small and medium-sized farms. They are often unable to use these instruments due to high insurance premiums or difficult conditions for obtaining compensation. According to Tahiri-Jouti (2022), only 30% of small farmers have access to agricultural insurance due to high costs. At the same time, Giannetti et al. (2023) suggest alternative approaches, such as microinsurance and cooperative insurance models, that can increase the accessibility of this financial instrument.

International financial organizations, such as the World Bank and the International Monetary Fund, actively support the financing of agricultural initiatives. Agrawal et al. (2023) note that these organizations play an important role in financing agricultural infrastructure projects, including the development of water supply, irrigation systems, and crop storage. Ahmed et al. (2024) emphasize the importance of green bonds in supporting sustainable agriculture.

Despite the positive effect, it is important to note that international financial programmes are not always effectively adapted to local economic and environmental conditions. In many cases, projects are implemented taking into account global priorities, but do not take into account the specifics of regional development. For example, Mustafa et al. (2023) argue that World Bank financing is often directed at large-scale infrastructure projects that may not take into account the needs of small farmers in specific countries.

Strategic financial management also plays an important role. Alharbi et al. (2023) analyse successful approaches to financing the agricultural sector, including diversifying sources of financing, using innovative financial instruments, and developing partnerships with international organizations. Shi and Yang (2025) and Bazaluk et al. (2020) argue that countries that actively use strategic financial approaches have more sustainable food markets.

However, there is a lack of studies in the literature that analyse the long-term effectiveness of strategic financial decisions in the context of global economic and environmental crises. The study of Abhilash et al. (2023)

shows that strategic financial management can increase resource efficiency. In many countries it is not sufficiently implemented because of weak institutional capacity and insufficient level of digitalization. The analysis of studies shows that financial instruments, in particular state subsidies, agricultural insurance, international investment, and strategic financial management, are the main mechanisms for ensuring the food market sustainability. However, there are a number of gaps in previous research, in particular insufficient attention to the long-term effects of financial measures. There is also a lack of research on adapting international financing to regional conditions and developing affordable insurance mechanisms for small agricultural enterprises. Therefore, research should be continued on improving existing financial instruments and adapting them to changes in the global economy and natural conditions. Besides, it is necessary to develop new innovative financial mechanisms for the sustainable development of the agricultural sector.

## **Methods**

### *Research Design*

The study of financial instruments for ensuring food market sustainability consisted of several stages:

1. Review of academic literature. The analysis of studies on the use of financial instruments in ensuring food security and food market stability.
2. Empirical research. Analysis of statistical data. Study of official statistical sources, such as the World Bank, UN, FAO in order to assess the dynamics of the global market of financial instruments and their impact on the food market. SWOT analysis. Assessment of the strengths and weaknesses of financial instruments, as well as opportunities and threats affecting the agricultural sector.
3. Providing practical recommendations. Development of proposals for improving mechanisms for state support for the agricultural sector and attracting international investment.

### *Sampling*

The study covered the period 2019-2023, which allowed us to assess the impact of global economic changes and technological developments on financial instruments in the food market. The data were obtained from official sources, in particular, FAO, which provides information on global

production of major agricultural crops and the level of use of organic fertilizers. The World Bank contains data on the volume of investment in agricultural technologies and financing of agrofood systems. Eurostat covers subsidies for renewable energy in the agricultural sector and the implementation of environmental standards. Furthermore, World Resources Institute (WRI) analytical reports (2021) on payments for ecosystem services and agricultural land restoring activities were used. FAO – United Nations Development Programme (UNDP) – the United Nations Environment Programme (UNEP) studies were also taken into account (2021), which assess the effectiveness of reoriented support for the agro-food sector. The analysis covered financial instruments, including grants, technical assistance, loan guarantees, equity investment and funds that ensure the development of infrastructure and the availability of credit resources. Support for innovations in precision agriculture and the application of IoT in the agricultural sector was also considered.

## *Methods*

The study was based on a combination of quantitative and qualitative methods. Statistical data analysis. Official data were used to analyse the dynamics of financial instruments in agriculture and their impact on food security. *Correlation and regression analyses* were used to determine the relationships between investments in agriculture, the use of innovative technologies, and production efficiency. Correlation analysis was used to identify the degree of dependence between investment indicators and the yield of major agricultural crops, while regression analysis was used to build models for predicting the impact of financial instruments on long-term incomes of the agricultural sector. *SWOT analysis* covered the assessment of internal and external factors affecting the effectiveness of financial instruments in ensuring the sustainability of the food market. The strengths of such instruments as state grants and subsidies for farmers, which provide access to credit resources and reduce risks for producers, as well as programmes supporting innovative technologies, in particular green bonds, were assessed.

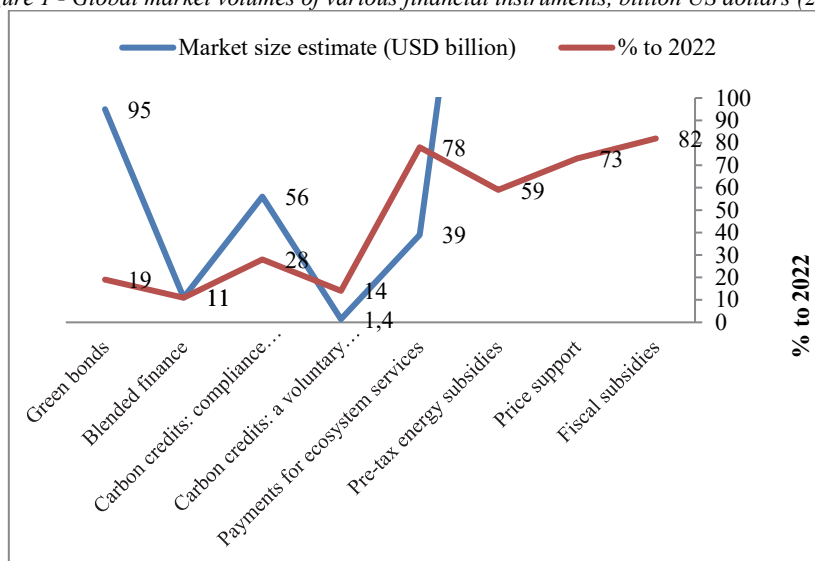
At the same time, weaknesses were identified, such as high collateral requirements for loans, which limit access to finance for small and medium-sized farms. The instability of financial instruments in periods of economic and political uncertainty was also noted. The opportunities associated with the development of digital financial instruments, such as crowdfunding platforms, were considered, as well as the growing potential of international investment in sustainable development of the agricultural sector. However,

the threats that arise in the event of changes in international trade agreements or political decisions that may reduce access to external financial resources were also assessed. The impact of natural disasters and climate change, which threaten the stability of agricultural production, was also taken into account.

## Results

It is important to note the scale of the global market for various financial and policy mechanisms in the discussion of agro-food support instruments and their impact on the sustainability of food markets. Figure 1 shows the estimated annual turnover of various instruments used to support and develop the agricultural sector at the global level. The market size of financial instruments that impact environmental and energy initiatives ranges from large amounts to much smaller ones. Green bonds account for \$ 95 billion, the carbon credit market (Emission Trading Systems, ETS compliance markets) for USD 56 billion. Voluntary carbon credits account for \$ 1.4 billion, and payments for ecosystem services for \$ 39 billion. Traditional energy subsidies for \$ 296 billion, price supports for \$ 294 billion, and fiscal subsidies for \$ 245 billion (Figure 1).

Figure 1 - Global market volumes of various financial instruments, billion US dollars (2024)



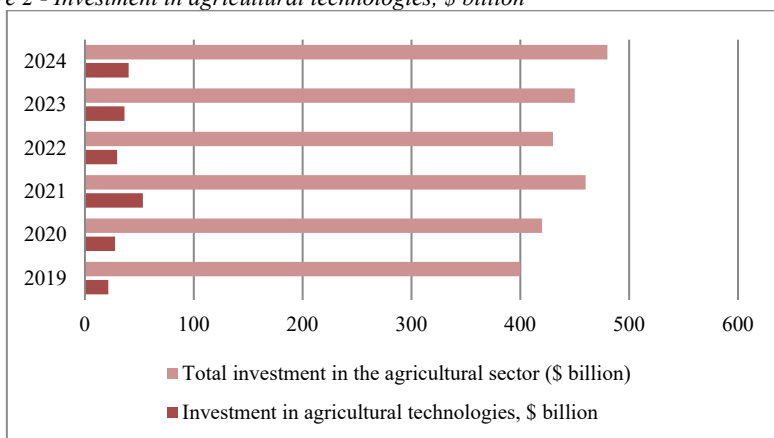
Source: developed by the authors based on FAO (2021), UNCTAD (2022), World Bank (2024), USDA (2024)

The data analysis indicates a great potential for change in the sustainable finance market. However, there are significant financial barriers that require rethinking and adapting policies to achieve true sustainability and reduce environmental impact. The analysis of investment in agricultural technologies during 2019-2024 reveals several key trends. In 2019, investment amounted to 21.5 billion US dollars, and the following year they increased to \$ 27.7 billion. This indicates an increased interest in innovation in the agricultural sector, likely due to the need to adapt to new economic realities and changes in food demand.

However, 2021 experienced the largest leap in investment, when they reached \$ 53.2 billion. A significant increase of 92% compared to the previous year can be explained not only by the high pace of development of agricultural technologies, but also by global challenges such as climate change and the pandemic. They stimulated the need for modernization and increased production efficiency.

In 2022, investments decreased to \$29.6 billion, a 23.6% decrease compared to the previous year. This may be determined by the market adjustment after the high growth rates in 2021, as well as economic challenges that reduced the attractiveness of such large investments. At the same time, growth is expected to resume in 2023 to \$36.4 billion, an increase of \$6.8 billion compared to 2022. The investment is expected to reach \$40.2 billion in 2024, indicating further growth and renewed confidence in the agricultural sector. This confirms that investment in agriculture continues to be important and the industry has significant potential for development, provided that economic and political conditions are stable.

Figure 2 - Investment in agricultural technologies, \$ billion

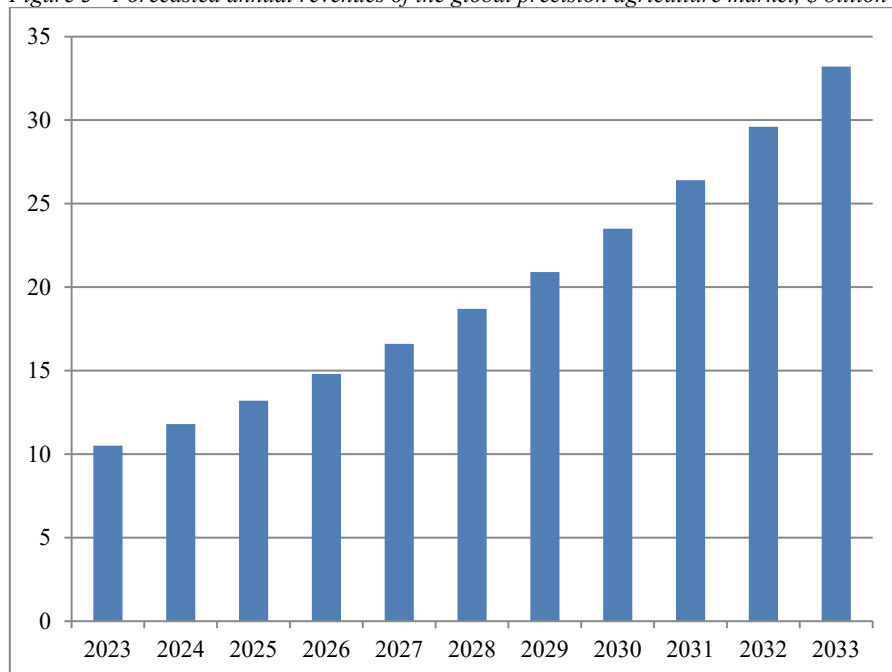


Source: developed by the authors based on FAO (2021), UNCTAD (2022), World Bank (2024), USDA (2024)



In general, the dynamics of investment in agricultural technologies reflect global trends in the agricultural sector, where periods of high growth alternate with adjustments. This indicates market instability, while indicating great opportunities for innovation and development in the future. Forecasted revenues for the coming years demonstrate steady growth, which confirms the positive dynamics of economic activity. In particular, revenues has gradually increased from 2023, reaching \$ 33.2 billion by 2033. This indicates the stable development of the agricultural sector and the potential to achieve financial goals, in particular within the scope of sustainable development (Figure 3).

*Figure 3 - Forecasted annual revenues of the global precision agriculture market, \$ billion*



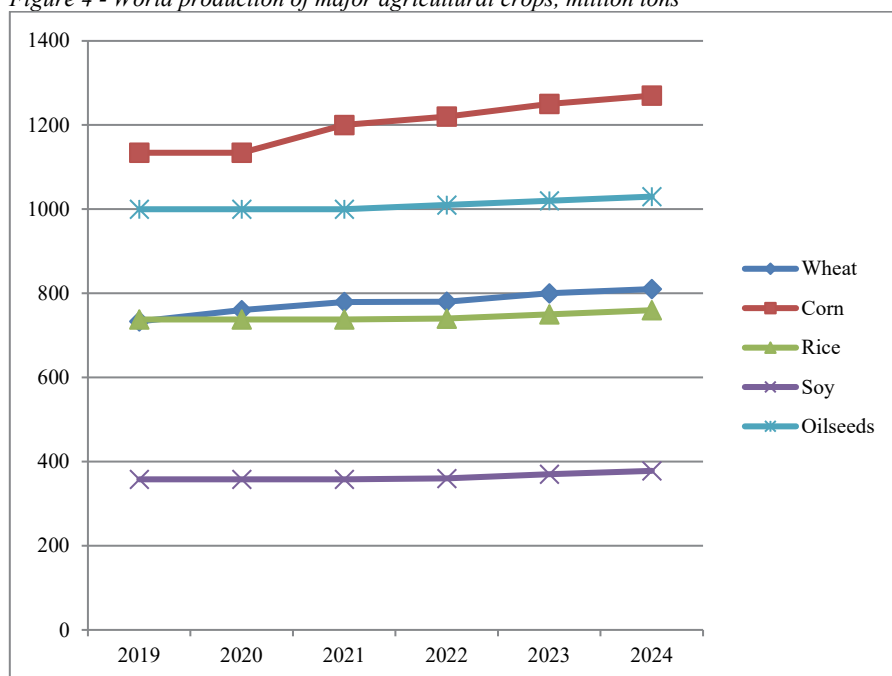
*Source:* developed by the authors based on FAO (2021), UNCTAD (2022), World Bank (2024), USDA (2024)

The growing income and financial instruments aimed at sustainable development can also be correlated with trends in the agricultural crop market. During 2019-2024, there has been a steady increase in the yield of major agricultural crops, such as wheat, corn, rice, soybeans, and oilseeds. In particular, the yield of wheat during this period increased by 10.5% (from 733.5 to 810), corn – by 11.9% (from 1134 to 1270), rice – by 1.6% (from 738 to 760), soybeans – by 5.6% (from 358 to 378), and oilseeds – by 3%

(from 1000 to 1030). This indicates an increase in production efficiency and potential for development of the agricultural sector (Figure 4).

In the context of projected revenues, which are steadily growing to \$33.2 billion by 2033, these data give grounds to conclude that the agricultural sector will play an important role in ensuring economic stability and development. The growth in agricultural crop production is in line with the general trends of income growth, which also highlights the importance of sustainable development and adaptation to global changes in the agribusiness.

Figure 4 - World production of major agricultural crops, million tons



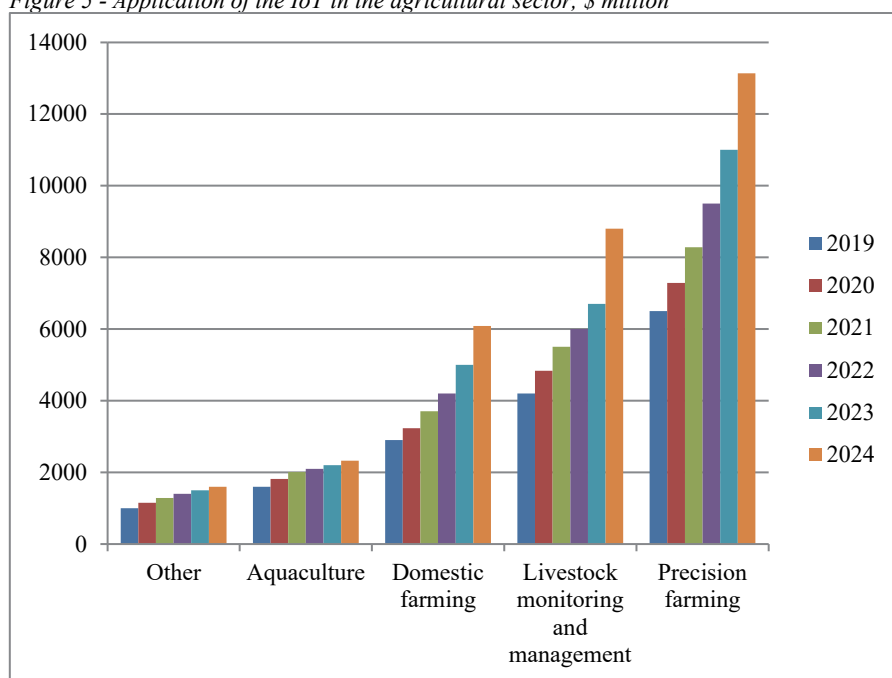
Source: developed by the authors based on World Bank (2024)

The analysis of the trends in crop yield growth shows a clear correlation between increasing efficiency of agricultural production and the use of technologies such as IoT. Over the period 2019-2024, the increase in the yield of wheat, corn, rice, soybeans and oilseeds demonstrates the sustainability and gradual development of the agricultural sector. This, in turn, contributes to an increase in economic activity and income in this area. The increased use of IoT in the agricultural sector also reflects the ability to adapt to global changes and challenges, in particular climate change and

resource constraints. The continuous implementation of the latest technologies and investment in sustainable development make the agricultural sector more efficient and able to provide stable income growth, as well as adapt to changing market conditions (Figure 5).

Considering that the income of the agricultural sector is projected to grow to \$ 33.2 billion by 2033, it is obvious that IoT will become one of the main driving forces of this development. The use of IoT in agriculture, as well as through investment in innovative technologies will enable the agricultural sector to increase production, but also to reduce the negative impact on the environment, which in turn will strengthen the resilience of the food market and contribute to sustainable development.

Figure 5 - Application of the IoT in the agricultural sector, \$ million

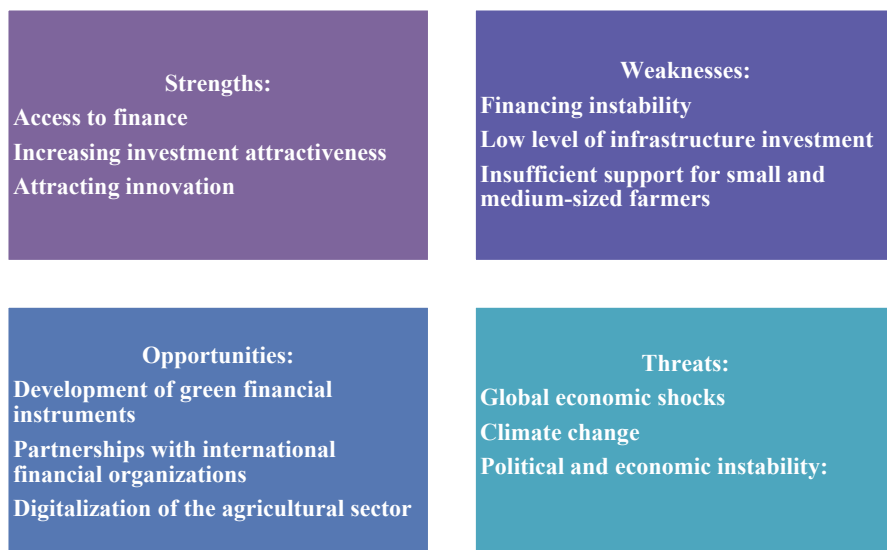


Source: developed by the authors based on World Bank (2024), USDA (2024)

SWOT analysis of financial instruments (Figure 6) in the agricultural sector shows that state support, loans and investment contribute to its development, and green bonds increase investment attractiveness. However, the instability of financing and the low level of infrastructure investment limit the efficiency of the sector, especially for small farmers. At the same time, the development of green financial instrument, digitalization and

international financial opportunities create prospects for growth. However, there are still such threats as global economic crises, climate change, and political instability. Sustainable development requires stable financing, innovative technologies, and effective regulation.

Figure 6 - SWOT analysis of the effectiveness of financial instruments in the agricultural sector



Source: developed by the authors

The improvement of financial instruments in the agricultural sector requires focusing on infrastructure development, support for small and medium-sized farmers, as well as the introduction of innovative financial instruments, such as green bonds and specialized investment funds. It is also important to expand international cooperation to attract external financial resources and develop new technologies. Adapting financial programmes to climate and economic changes will contribute to the creation of sustainable and environmentally friendly agricultural production, which will ensure the long-term stability of the sector.

## Discussion

The results of the study of financial instruments for ensuring food market sustainability confirm the conclusions of a number of other authors. In

particular, the importance of blended financing, which includes grants, technical assistance, loan guarantees, investment in capital and funds, is emphasized. The outlined approaches actively support the agricultural sector, which is consistent with the perspective of Varnalii (2020). He emphasizes the need for state subsidies to reduce production costs and increase the availability of agricultural products. The study confirms that state subsidies contribute to the stability of the food market. However, their effectiveness directly depends on their intended use, which is also emphasized by Giannetti et al. (2023), focusing on the importance of developing the infrastructure of the agricultural sector. Studies by international financial organizations confirm that the stable insurance mechanisms reduces financial pressure on farmers and stimulates investment in agriculture. This is consistent with the opinion of Hua et al. (2024), who note the role of international financial institutions in creating financing programmes aimed at ensuring food security. Strategic financial management, which includes diversifying funding sources and developing partnerships with international organizations, is an important element in ensuring food market stability. This is also confirmed by the study of Sumets et al. (2022).

The use of innovative financial instruments, such as green bonds, can significantly support the sustainable development of the agricultural sector. This is also confirmed by the studies of Shi and Yang (2025) and Shpykuliak et al. (2022). They emphasize the importance of combining traditional financial instruments with new mechanisms, such as socially responsible investment (SRI). This not only stabilizes the market, but also ensures environmental responsibility. The role of adapting financial mechanisms to global economic changes is also important, which is confirmed by the research of Ostapenko (2021). These instruments allow countries to respond more quickly to the challenges associated with climate change and economic instability. Attracting investment in agricultural infrastructure is another important aspect that increases the efficiency of agricultural production. The research of Humeniuk et al. (2021b), as well as Chen and Bian (2023) emphasize that the development of facilities such as roads, warehouses, and irrigation systems is critical to ensuring access to finance and increasing agricultural productivity.

The study of the role of public investment in supporting SMEs in the agricultural sector, in particular through flexible financial mechanisms, which is emphasized by Ivashkiv et al. (2020), contributes to ensuring food security, as these enterprises are important suppliers of food in local markets. The findings of Tsimoshynska et al. (2021) on the importance of flexible financial mechanisms also confirm these results.

A comparison of traditional and refocused approaches to supporting the agri-food sector revealed that traditional mechanisms, in particular export subsidies, can distort market signals. Instead, refocused approaches emphasize sustainable development and environmental standards. This statement is consistent with the recommendations of international organizations such as FAO, which suggest focusing on the environmental efficiency of production.

The study confirms the importance of financial instruments for ensuring food market sustainability. However, it reveals the need for further research and improvement of existing mechanisms, adapting them to changes in the global economy and natural conditions. Such an approach will ensure stable development of the agricultural sector and food security in the face of current challenges.

The practical application of the obtained results is to optimize the financing of the agricultural sector by increasing the role of state subsidies, investment in green financial instruments and the development of agricultural infrastructure. This will ensure not only the stability of financing, but also the sustainable development of the agricultural sector. The integration of environmental standards and flexible financial mechanisms for small businesses will allow an effective response to modern economic and environmental challenges.

**The limitations** of the conducted research: the analysis was conducted based on data available for 2019-2024, which may not take into account long-term changes in the financial or economic situation.

**The recommendations** based on the research can be aimed at improving financial mechanisms, increasing the efficiency of the agricultural sector, and ensuring the stability of the food market. In particular, expanding access to agricultural insurance can significantly reduce farmers' financial risks associated with natural disasters and unpredictable climate changes. It is important to develop insurance programmes that support small and medium-sized producers, in particular through state guarantees or subsidies.

## Conclusions

The study found that blended finance, which includes grants, technical assistance, loan guarantees, and equity investments, is a key tool for ensuring food market sustainability. These financial mechanisms reduce costs,

improve project quality and reduce financial risks, which helps to attract investment in sustainable agricultural development.

The analysis of investment in agricultural technologies showed a growing interest in innovation, particularly in the face of global challenges such as climate change. In 2019, investment in agricultural technologies amounted to \$ 21.5 billion, and they reached \$ 40.2 billion in 2024, which indicates significant potential for development in the agricultural sector, provided that economic and political conditions are stable. The introduction of technologies such as IoT also plays an important role in increasing production efficiency. According to the results, the implementation of IoT in agriculture ensures an increase in the yield of major crops such as wheat (growth by 10.5% from 733.5 to 810 million tons), corn (growth by 11.9% from 1,134 to 1,270 million tons) and soybeans (growth by 5.6% from 358 to 378 million tons) for 2019-2024.

It is important to develop infrastructure, support small and medium-sized farms, and adapt financial programmes to new realities in order to improve financial instruments in the agricultural sector.

The practical value of the study is the developed recommendations for optimizing financing for sustainable development of the food market, in particular through the use of blended financial instruments. The results of the study may be useful for government agencies, financial institutions, and agricultural enterprises in developing policies and programmes to ensure food security and food market sustainability.

Prospects for further research include an in-depth analysis of the effectiveness of using blended financial instruments for sustainable development of the agricultural sector. In particular, this is a study of the impact of new technologies, such as AI and blockchain, on increasing transparency and reducing costs in agriculture.

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# *The Impact of environmental management on the sustainable development of territorial communities*

by Mykhailo Pyrko\*, Valentyna Abalmasova\*\*, Mary Ene Atalawei\*\*\*, Oleksandr Govorun\*\*\*\*, Liliia Muntian\*\*\*\*\*

## *Abstract*

Environmental management of territorial communities is important for preserving natural resources and mitigating environmental risks, which contributes to achieving sustainable development goals (SDGs). The aim of the study is to assess the effectiveness and impact of environmental protection expenditure (EPE) as an important tool of environmental management on the sustainable development of territorial communities. The study employs regression analysis, correlation analysis, and comparison methods. The study identified the most effective areas of EPE by territorial communities. These include: other activities in the field of ecology and protection of natural resources, environmental protection measures at the expense of special-purpose funds, protection and rational use of natural resources. The effectiveness of such areas was determined through a regression analysis of the impact of EPE on the environmental indicators of the relevant regions. The volume of pollutant emissions into the atmosphere is most affected by expenditures on other activities in the field of ecology and protection of natural resources with a regression coefficient of -0.542787. Environmental protection measures at the expense of special funds have a significant impact on total waste generation (-0.782511) and on

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the volume of polluted wastewater (-0.443516). Regression analysis did not reveal a statistically significant impact of any of the variables on the I-III hazard class waste generation and the number of cases of malignant neoplasms. The environmental policy of territorial communities should focus on the identified effective areas of expenditure and revise expenditures that do not contribute to improving environmental indicators. It should be noted that the volume of expenditures is not the most important factor in efficiency – the quality of planning and management is of key importance. The findings may be useful for territorial communities to improve the environmental management system in terms of managing the effectiveness of expenditures on environmental protection.

**Keywords:** environmental management, territorial communities, sustainable development, environmental protection expenditure, protection of natural resources, targeted measures.

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## Introduction

Adaptive Sustainable development of territorial communities is an important component of the global strategy for sustainable development of society. It balances the social, economic, and environmental aspects of life at the local level, fostering sustainable development of the state as a whole. At the global level, this contributes to achieving SDGs – poverty reduction, providing access to quality education, combating climate change, etc.

The sustainable development of territorial communities in Ukraine faces a number of problems, one of the most difficult being the ongoing hostilities in the country (Savina et al., 2024). In addition to the complete devastation of territories and significant losses among the civilian population, the war leads to a catastrophic deterioration of the environmental situation (Pereira et al., 2022; Rawtani et al., 2022). The environmental component of sustainable development of communities requires special attention because of the aggravation of environmental problems.

Effective implementation of environmental conservation approaches is ensured by a proper environmental management system. The correct setting and achievement of environmental goals depends on the environmental management of territorial communities (Chen & Huang, 2020; Latysheva et al., 2020). Such goals include the rational use of natural resources, mitigation of environmental risks, and preservation of the natural environment.

One of the key tools of environmental management is the EPE, which is aimed at the implementation of environmental programmes and plans. Given limited financial resources of territorial communities, the rational use of such

expenditures is an important factor for achieving environmental goals (Borisova et al., 2020). Accordingly, the aim of the research is to assess the effectiveness and impact of EPE as an important tool of environmental management on the sustainable development of territorial communities. The aim involves the fulfilment of the following research objectives:

- Conduct a regression analysis of the impact of EPE on the environmental indicators of territorial communities;
- Identify the most effective measures to support the natural environment and minimize negative impacts;
- Compare the effectiveness of expenditures by region.

## Literature review

Sustainable development of territorial communities is relevant given the significant contribution of these territorial units to the overall socio-economic development of states. Moallemi et al. (2020) are confident that transformational changes at the local level can provide a promising approach to increasing sustainability, adapted to the unique conditions of each territorial unit. Erbaugh et al. (2020) and Imperiale and Vanclay (2021) noted the need to prioritize the sustainable development of territorial communities and their significant role in increasing resilience to risks. Toledo (2020) emphasized that until recently, rural modernization was associated with the forced replacement of peasant small-scale production by large collective or entrepreneurial farms. In contrast to this approach, the new strategy for sustainable development of territorial communities is based on evolutionary development and involves the modernization of the village. Such an approach has significant advantages in terms of preserving local traditions and supporting the development of local economies. At the macroeconomic level, it contributes to long-term economic stability, mitigating the negative consequences of industrialization.

Despite the great importance of territorial communities in sustainable development, their role in this process remains limited. Haji et al. (2020) noted that an obstacle to achieving environmental goals is the existing gap between the goals of the government and the local population or communities. Adamowicz and Zwolińska-Ligaj (2020), and Budziewicz-Guźlecka and Drożdż (2022) noted that rural areas are often left out of the main processes of innovative development. According to the researchers, the idea of growth with the involvement of territorial communities can be based on the concept of “smart village”. Zhang and Zhang (2020) defined this concept as a model of rural development based on the use of the advantages

of information and communication technologies. Agreeing with the importance of introducing new technologies, Renukappa et al. (2024) and Zavratinik et al. (2020) noted that the implementation of the concept of “smart village” is difficult without the active involvement of the local population.

Along with comprehensive approaches, one of which is the development of a “smart village”, the researchers consider narrow areas of ensuring sustainable development of communities. Khomiuk et al. (2020) proved that one of the most effective tools is diversification, which allows strengthening the competitive advantages of territorial units, increasing their income and productivity. A number of studies have noted the advantages of developing sustainable tourism in territorial communities, which provides profit for the agricultural, tourism and cultural economic sectors (Iannucci et al., 2022; Maldonado-Erazo et al., 2022).

In the context of globalization, environmental issues of sustainable development of territorial communities are of particular importance (Rahman, 2022). For Ukraine, which suffers from the devastating consequences of war, supporting and restoring the environment are priority tasks that determine the strategic importance of environmental management (Flamm & Kroll, 2024). The importance of proper management of natural resources and environmental protection is emphasized in the research of Pye-Smith and Borrini-Feyerabend (2021). The researchers gave examples of successful initiatives in the field of environmental management of territorial communities, which contributed to the implementation of sustainable practices and the growth of community incomes. Hrynychuk et al. (2023) concluded that the mechanism of environmental management of territorial communities enables the implementation of a balanced environmental policy, balancing the interaction of local residents and nature.

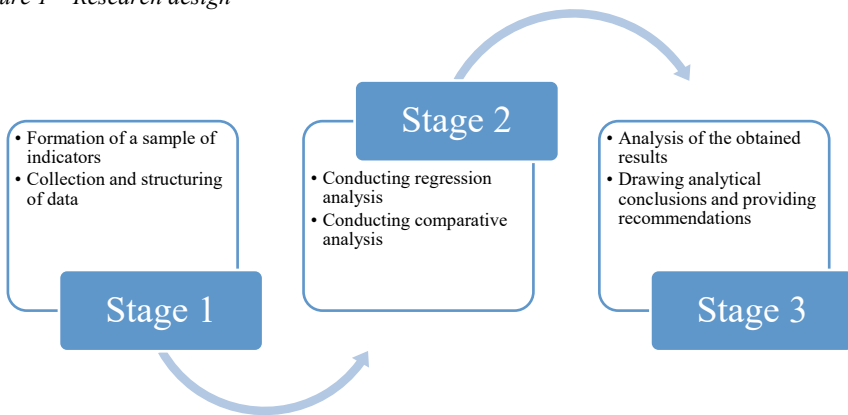
At the same time, the issue of the impact of environmental management on the sustainable development of communities remains poorly studied. This is determined by the lack of a unified clearly defined approach to the composition and content of indicators for such an assessment. The studies of Alaimo and Maggino (2020), and Panchyshyn and Vdovyn (2023) propose different approaches to the formation of a system of indicators for the sustainable development of territorial communities. However, indicators for assessing the effectiveness of environmental management and its impact on sustainable development are not taken into account in the studies. This study seeks to fill this gap by proposing its own method of assessing the impact and effectiveness of environmental management on the sustainable development of territorial communities. This involves the use of a system of environmental indicators and indicators of the volume of EPE.

## Methodology

### Research design

The research procedure includes three main stages. The first stage involved the formation of a sample of environmental indicators of the regions of Ukraine and indicators of expenditures of territorial communities on environmental protection. The second stage involved the collection of data on the specified indicators and their structuring for the purposes of regression and comparative analyses. The third stage involved the analysis of the results, drawing conclusions, and providing recommendations (Figure 1).

Figure 1 – Research design



Source: developed by the authors

### Sample

The sample is formed by two groups of indicators: indicators of the ecological state of the regions and indicators of the total expenditures of territorial communities on environmental protection. The first group included: emissions of pollutants into the atmosphere, increase/decrease in mobile source emissions per person, generation of waste of I-III hazard classes, generation of waste in general (I-IV hazard classes), volume of contaminated wastewater, number of cases of malignant neoplasms. The second group included indicators of the volume of expenditures on: protection and rational use of natural resources, waste disposal, elimination of other environmental pollution, preservation of the nature reserve fund, other activities in the field of ecology and protection of natural resources, environmental protection measures at the expense of special funds. The

sample was formed based on data on the assessment of the ecological state of the regions and data on the total budget expenditures of territorial communities for each region, respectively (Lviv Portal, 2022; Open Budget, 2024). The observed indicators reflect the main aspects of the ecological state of the regions, as well as the level of financing of environmental measures. This enables assessing the relationship between the incurred costs and environmental results. The indicators relate to key aspects of environmental management, in particular, pollution control, conservation of natural resources, waste disposal, etc. The formed sample is sufficient to achieve the objectives of the study, in particular, to identify the most effective environmental measures to improve the environmental situation.

### *Methods*

The main method of the study is regression analysis using the linear regression method. This method was used to assess the impact of territorial communities' EPE on the environmental indicators of the regions of Ukraine. Additionally, comparative analysis was applied, which allowed us to identify indicators with the greatest impact on the dependent variables. Correlation analysis using the k-means was applied to assess the relationship between these indicators. These methods made it possible to describe the effectiveness of the expenditures and make assumptions about the impact of the amount of expenditures on the effectiveness of the results.

### **Results**

Regression analysis of territorial communities' expenditures on ecology as a tool of environmental management was aimed at assessing their impact on the environmental indicators of the regions. This indicated the effectiveness of environmental management of territorial communities from the perspective of the used models of financing environmental measures, as well as priorities and strategies within the framework of environmental policy. Accordingly, the environmental indicators of the regions were dependent variables in the analysis, and territorial communities' EPE were independent ones (Tables 1-4).



Table 1 – Regression results for the dependent variable Pollutant Emissions into the Atmosphere

	Regression coefficient	Standard error	t(5)	p-value
Regression results for the dependent variable: Pollutant Emissions into the Atmosphere R = .73182769, R2 = .53557176, Adjusted R2 = .37165592, F(6.17) =3.2674, p < .02527. Standard error of estimate: 2.2427				
Intercept	3.636425	0.680706	5.34214	0.000054
Protection and rational use of natural resources	-0.240800	0.178014	-1.35270	0.193871
Waste disposal	0.008490	0.168453	0.05040	0.960392
Elimination of other environmental pollution	0.018427	0.184918	0.09965	0.921788
Preservation of the nature reserve fund	0.169313	0.178130	0.95050	0.355176
Other activities in the field of ecology and protection of natural resources	-0.542787	0.168270	-3.22569	0.004965
Environmental protection measures at the expense of special-purpose funds	-0.463399	0.167932	-2.75944	0.013400

Source: developed by the author based on (Lviv Portal, 2022; Open Budget, 2024)

Two variables have a strong negative impact on the dependent indicator – other activities in the field of ecology and protection of natural resources and environmental protection measures at the expense of trust funds. The first of them may include non-standard measures, for example, monitoring the environmental state, conducting educational campaigns, supporting public initiatives. Environmental protection measures at the expense of special-purpose funds are aimed at solving specific environmental problems. The costs of the noted measures are the most effective for reducing the volume of pollutant emissions into the atmosphere. The Intercept has a direct effect with a high correlation coefficient on the dependent variable. Accordingly, the growth of pollution can be significantly affected by factors not taken into account in the model. However, this is not a drawback of the model, as it is aimed, first of all, at identifying measures to minimize pollution.

*Table 2 – Regression results for the dependent variable Increase/Decrease in Mobile Source Emissions per Person*

	Regression coefficient	Standard error	t(5)	p-value
Regression results for the dependent variable Increase/Decrease in Mobile Source Emissions per Person R = .61940521, R2 = .38366281, Adjusted R2 = .16613204, F(6.17) = 1.7637, p < .16682. Standard error of estimate: 1,0700				
Intercept	-0.412146	0.324775	-1.26902	0.221534
Protection and rational use of natural resources	0.221976	0.205071	1.08243	0.294175
Waste disposal	0.268529	0.194057	1.38376	0.184332
Elimination of other environmental pollution	-0.164017	0.213025	-0.76994	0.451900
Preservation of the nature reserve fund	0.521182	0.205204	2.53982	0.021148
Other activities in the field of ecology and protection of natural resources	0.030649	0.193846	0.15811	0.876231
Environmental protection measures at the expense of special-purpose funds	0.305162	0.193457	1.57742	0.133125

*Source:* developed by the author based on (Lviv Portal, 2022; Open Budget, 2024)

The dependent variable is most influenced by the amount of spending on preserving the natural reserve fund. This influence is direct, that is, preserving the natural reserve fund is accompanied by an increase in mobile source emissions. This can be explained by an indirect influence of tourist activity and, for example, the arrangement of recreation areas in the relevant territories. These factors contribute to an increase in traffic flow, which leads to an increase in emissions from mobile sources.

According to the regression results for the dependent variable “waste generation of hazard classes I-III”, the corresponding model had low explanatory power and none of the variables was statistically significant. This situation indicates inefficient or insufficient spending on reducing the I-III hazard class waste generation. The problem may be the difficulties associated with the management and control of such waste, technical limitations, high cost of disposal.

*Table 3 – Regression results for the dependent variable Total Waste Generation (I-IV hazard classes)*

	Regression coefficient	Standard error	t(5)	p-value
Regression results for the dependent variable: Total Waste Generation (I-IV hazard classes) R = .92351413, R2 = .85287834, Adjusted R2 = .80095305, F(6,17) = 16.425, p < .00000. Standard error of estimate: .55014				
Intercept	2.608134	0.166982	15.61930	0.000000
Protection and rational use of natural resources	-0.477700	0.100192	-4.76784	0.000179
Waste disposal	0.159942	0.094811	1.68696	0.109872
Elimination of other environmental pollution	0.269354	0.104078	2.58801	0.019149
Preservation of the nature reserve fund	-0.051895	0.100257	-0.51762	0.611394
Other activities in the field of ecology and protection of natural resources	-0.378219	0.094708	-3.99353	0.000940
Environmental protection measures at the expense of special-purpose funds	-0.782511	0.094518	-8.27900	0.000000

*Source:* developed by the author based on (Lviv Portal, 2022; Open Budget, 2024)

Environmental protection measures at the expense of special-purpose funds show the strongest negative impact on waste generation in general. This indicates the high effectiveness of target measures, which may be associated with the introduction of new technologies that contribute to reducing waste volumes. The same is applicable to the expenditures on the protection and rational use of natural resources, which contribute to reducing waste generation by improving resource management and rational use of nature. Other measures that are not included in standard programmes can also be effective in reducing waste generation. This is evidenced by the negative impact from other activities in the field of ecology and protection of natural resources. Only the variable Elimination of Other Environmental Pollution has a direct impact on the waste generation volume. Pollution elimination measures may involve active collection, accumulation and accounting of waste, which affects statistical data. If the waste processing process has certain shortcomings, it may lead to the accumulation of a large amount of secondary waste, which also affects the waste generation indicator. The statistically insignificant effect of waste disposal expenditures can be explained by the fact that the relevant measures are aimed at recycling existing waste, but do not affect the volume of its generation. In general, the

resulting model is able to explain about 80% of the variation in the dependent variable given the adjusted coefficient of determination.

*Table 4 – Regression results for the dependent variable Polluted Wastewater Volume*

	Regression coefficient	Standard error	t(5)	p-value
Regression results for the dependent variable: Polluted Wastewater Volume R = .58497628, R <sup>2</sup> = .34219725, Adjusted R <sup>2</sup> = .11003158, F(6,17) = 1.4739, p < .24556. Standard error of estimate: 2.6845				
Intercept	2.347810	0.814823	2.88138	0.010363
Protection and rational use of natural resources	0.147575	0.211857	0.69658	0.495483
Waste disposal	0.042198	0.200478	0.21049	0.835790
Elimination of other environmental pollution	0.246830	0.220074	1.12158	0.277634
Preservation of the nature reserve fund	0.131058	0.211995	0.61822	0.544628
Other activities in the field of ecology and protection of natural resources	-0.153608	0.200261	-0.76704	0.453579
Environmental protection measures at the expense of special-purpose funds	-0.443516	0.199858	-2.21915	0.040372

*Source:* developed by the author based on (Lviv Portal, 2022; Open Budget, 2024)

The greatest negative impact on the polluted wastewater volume is caused by spending on environmental protection measures at the expense of target funds. Targeted environmental protection measures financed by the budgets of territorial communities are effective in improving the quality of water resources. Intercept shows that the increase in the wastewater pollution volume may be influenced by factors not taken into account in the model.

The model of the influence of environmental indicators on the number of cases of malignant neoplasms did not reveal a statistically significant effect on the dependent variable. Such diseases may be the result of a complex of factors, not only environmental, but also social, economic and other. Accordingly, spending on environmental measures may be only part of an overall strategy to minimize this problem.

## Discussion

The conducted analysis proves the effectiveness of EPE as an environmental management tool. At the same time, the amount of EPE is not

a determining factor of effectiveness, so the quality of planning and management of expenditures plays an important role. Additional factors of effectiveness may be cooperation with local residents, the introduction of new technologies, etc.

The obtained results are consistent with the conclusions of Pye-Smith and Borrini-Feyerabend (2021), who noted that the most important role in the implementation of environmental management of territorial communities is played by cooperation, community participation, and innovation. Haji et al. (2020) proved the crucial role of the local community in sustainable land and forest management. Regarding the leading role of cost management, the author's conclusions are also supported by a number of studies. In particular, Hrynychuk et al. (2023) mentioned environmental spending among the key tools of environmental management of territorial communities. The importance of environmental costs and their assessment is also emphasized in the studies of Bilokinna (2023) and Diachuk et al. (2024). However, unlike the author's study, the authors did not analyse the impact of such costs on sustainability.

Regarding the assessment of sustainable development of territorial communities, many researchers emphasized the lack of effective approaches to its implementation and proposed their own systems of evaluation indicators. Panchyshyn and Vdovyn (2023) proposed a comprehensive approach using an integral indicator. The Alaimo and Maggino (2020) method consists in focusing on the first three sustainable development of and identifying indicators useful for analysing specific regions. Roldan et al. (2023) identified a set of variables related to the sustainable development of rural areas using methods of analysing academic literature. However, studies lack approaches to creating a system of indicators that determine the effectiveness of environmental management, as well as approaches to assessing its impact on sustainable development. The author's study partially compensates for this gap by proposing an approach to assessing the effectiveness of environmental management taking into account the environmental indicators of communities and their environmental costs.

Environmental management of territorial communities is closely related to the smart village concept. This concept also includes the use of new technologies and management approaches for the sustainable development of territorial communities (Zhang & Zhang, 2020). The works of Adamowicz and Zwolińska-Ligaj (2020), and Budziewicz-Guźlecka and Drożdż (2022) prove that the implementation of smart village is beneficial for the sustainable development of rural areas. The key difference between the author's study and the noted works is a narrower focus directly on the environmental aspect of sustainable development.

A number of studies considered other tools for ensuring the sustainable development of territorial communities. For example, Khomiuk et al. (2020) noted that attracting investment and diversifying economic activities can be important tools for ensuring sustainable development. Unlike the author's study, their research focuses more on economic strategies for ensuring sustainable development. In turn, environmental management is aimed, first of all, at the rational use of natural resource potential.

Tourism development plays an important role in achieving sustainable development of territorial communities. This direction is related to environmental management, because tourism, as Iannucci et al. (2022) noted, can have both positive and negative effects on the natural environment. According to Maldonado-Erazo et al. (2022), sustainable tourism allows preserving natural resources and minimizing harmful impacts on the environment, contributing to the development of communities. However, this direction was not considered in the author's study, as the costs in the tourism industry defined in the article *Implementation of Programmes and Activities in the Field of Tourism and Resorts*, are not directly related to EPE. The practical value of the study is the substantiated approach to assessing the impact of environmental management on the sustainable development of communities using a system of environmental indicators and environmental cost indicators.

**The research limitations** concern the difficulties in determining the ecological state of regions of Ukraine during wartime and revealing the real damage to the environment from military operations.

## **Recommendations**

- Optimize EPE focusing on the most effective areas: financing through trust funds, protection and rational use of natural resources;
- Strengthen control and efficiency of resource use in the field of waste disposal;
- Improve management and infrastructure in the transport sector, for example, implement initiatives to create a network of environmentally friendly public transport to tourist destinations;
- Implement innovative solutions for hazardous waste management, strengthen control and treatment requirements.

## Conclusions

The environmental component is particularly important in the context of sustainable development of territorial communities, as significant reserves for natural regeneration have been preserved in rural areas. This makes it urgent to implement environmental management of territorial communities, identify effective environmental management tools, and evaluate results.

The results of the analysis conducted in the study gave grounds to identify the most effective areas of environmental spending as an important tool of environmental management. The reduction of pollutant emissions into the atmosphere is affected by spending on other activities in the field of ecology and protection of natural resources and environmental protection measures at the expense of special-purpose funds. Expenditures on environmental protection measures at the expense of special-purpose funds shows a strong negative impact on waste generation in general. This also applies to spending on protection and rational use of natural resources and other measures that are not included in standard programmes. Expenditures on environmental protection measures at the expense of special-purpose funds has a significant negative impact on the polluted wastewater volume.

The environmental policy of territorial communities should be based on identified effective areas of expenditure and revision of areas that have not demonstrated a significant impact on improving environmental indicators. At the same time, the volume of expenditure is not a determining factor in their effectiveness, therefore, sound planning and management are of great importance. Further research may focus on analysing the impact of tourism expenditure on the sustainable development of territorial communities.

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# *Analysis of the institution of parole in the context of criminal law theory and practice*

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## *Abstract*

In modern criminal legal systems, the institution of parole is an important element aimed at the rehabilitation of convicts and their social adaptation. The purpose of the study is to study the theoretical and practical problems associated with its application, including issues of legal guarantees and the effectiveness of the institute as a whole.

The article uses a comprehensive approach that includes an analysis of current legislation, judicial practice, as well as a sociological study of the opinions of practicing lawyers and representatives of the penitentiary system.

The authors propose a number of recommendations for improving the institution of parole, including clarifying legislative norms, increasing transparency and predictability of court decisions, as well as strengthening the role of preventive and rehabilitative measures for convicts. The implementation of the proposed measures will balance the interests of society and the rights of convicts, as well as increase the effectiveness of the institution of parole in the rehabilitation of criminals.

**Keywords:** parole, criminal law, rehabilitation of convicts, legal guarantees, judicial practice.

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## 1. Introduction

Punishment is one of the most important institutions of criminal law. The correct solution to a number of its problems is of great practical importance in the fight against crime and the preservation of public order.

In the theory of law, the concept of criminal punishment is used in a variety of meanings.: as a legal consequence of the commission of a crime; as a method (form) of criminal liability; as a means (instrument, measure) of criminal legal influence on the perpetrator of the crime; as a means (instrument, instrument) of criminal legal struggle against crimes; as punishment (retribution) to the perpetrator for the deed; as a form (measure) of state coercion applied against the perpetrator, such as pain (deprivation, suffering), some kind of damage caused on the basis of a court verdict to the perpetrator of a crime, and others (Kim, 2018).

According to Article 39 of the Criminal Code of the Republic of Kazakhstan, “1. Punishment is a measure of state coercion imposed by a court verdict. The punishment is applied to a person found guilty of committing a criminal offense and consists in the deprivation or restriction of the rights and freedoms of this person provided for in this Code. 2. Punishment is applied for the purpose of restoring social justice, as well as correcting the convicted person and preventing the commission of new criminal offenses by both the convicted person and others. Punishment is not intended to cause physical suffering or humiliate human dignity” (Criminal Code, 2014).

Although earlier, namely, Article 20 of the Criminal Code of the Kazakh SSR, which was in force before the adoption of the Criminal Code of the Republic of Kazakhstan in 1997, stated that punishment is not only a punishment for a crime committed, but also aims to correct and re-educate convicts in the spirit of an honest attitude to work, strict enforcement of laws, respect for the rules of the socialist community, as well as the prevention of new crimes committed by both convicted and other persons. Punishment is not intended to cause physical suffering or humiliate human dignity (Criminal Code, 1959).

According to Altman (2023), the imposition of lawful, reasonable and fair punishment is the most important means of combating crime and strengthening law and order, provides the necessary punitive impact, promotes the restoration of social justice, the correction of convicts, as well as the prevention of crimes committed by both convicts and other persons.

In our opinion, punishment, in its essence, is a criminal punitive measure of the state. However, punishment (causing suffering and deprivation to a criminal) cannot be considered as the purpose of punishment. The most

important goal of punishment is the correction or re-education of the convicted person based on the principles of legality, humanity, justice and individualization of punishment. At the same time, the correction of a convicted person while serving a sentence imposed by a court verdict, as one of the main conditions, gives him the right and a chance for early release from punishment.

Moreover, history convincingly proves that in the fight against crime and the preservation of public order, it is impossible to achieve serious success only by applying criminal penalties to criminals, including strict and cruel ones. Not only preventive measures, preventive measures in this fight bring more success, but also, in our opinion, the rehabilitation of convicts. The Concept of Legal Policy of the Republic of Kazakhstan (2021) draws special attention to this and states that “Re-socialization in the penal system is of paramount importance in maintaining public order in the state.” Only comprehensive measures in this matter will ensure proper protection of the rights, freedoms, benefits and interests of all its citizens protected by the State. The institution of exemption from criminal punishment occupies a significant place in the system of ensuring and implementing these measures, as a measure of the manifestation of humanism, justice and expediency of the correctional system.

As Tokubaev Z. S. (2007) notes, the operation of the correctional system presupposes the achievement of the goal of general crime prevention.

A general warning is implemented through the content of a criminal law measure, legally established restrictions on the legal status of a convicted person, which are imposed on him as part of early release from serving a sentence under certain conditions. These include:

- conditional early release from serving a sentence;
- replacement of the unserved part of the punishment with a milder type of punishment;
- early release by an act of amnesty or pardon;
- due to the state of health;
- other grounds provided by law.

Thus, in a number of cases stipulated by law, when the goals of punishment have been achieved or, due to some newly arisen circumstances, the person has ceased to be dangerous to society, probation is used more often than other types of early release (art. 72 of the Criminal Code of the Republic of Kazakhstan).

It applies only to persons serving restriction of liberty or deprivation of liberty, that is, to those convicted after they have actually served their sentence:

- 1) at least one third of the term of punishment imposed for a minor or moderate crime;
- 2) at least half of the term of punishment imposed for a serious crime;
- 3) not less than two thirds of the term of punishment imposed for a particularly serious crime;
  - 3-1) not less than two thirds of the remaining unserved term of punishment in the event that the previously applied parole was revoked on the grounds provided for in paragraphs 1 and 2 of part seven of this Article;
- 4) not less than three quarters of the term of punishment, if the previously applied conditional early release was canceled on the grounds provided for in paragraph 3 of part seven of this Article;
- 5) at least one third of the term of punishment imposed for a serious crime, or at least half of the term of punishment imposed for a particularly serious crime, if the convicted person fulfills all the conditions of the procedural agreement.

Conditional early release from serving a sentence may be applied to pregnant women, women with young children, men raising young children alone, women aged fifty-eight and over, men aged sixty-three and over, and persons with disabilities of the first or second group after actual service:

- 1) at least one-fourth of the term of punishment imposed by a court for a crime of minor or moderate gravity;
- 2) at least one third of the sentence imposed by the court for a serious crime;
- 3) not less than half of the term of punishment imposed by the court for a particularly serious crime not involving an attempt on human life, as well as if the previously applied parole was revoked on the grounds provided for in paragraphs 1) and 2) of part seven of this Article;
- 4) not less than two thirds of the term of punishment imposed by a court for a particularly serious crime involving an attempt on human life, as well as if the previously applied conditional early release was canceled on the grounds provided for in paragraph 3 of part seven of this Article;
- 5) at least one-fourth of the term of punishment imposed for a serious crime, or at least one-third of the term of punishment imposed for a particularly serious crime, if the convicted person fulfills all the conditions of the procedural agreement.

The actual term of imprisonment served by the convicted person may not be less than six months.

At the same time, it is also necessary to fully compensate the convicted person for the damage caused by the crime and to ensure that he does not commit any serious violations of the established procedure for serving his sentence.

Probation is applied to minors sentenced to imprisonment or restriction of liberty, or correctional labor, provided that they do not have serious violations, as well as after they have actually served or executed (Part 1 of Article 86 of the Criminal Code of the Republic of Kazakhstan):

- at least one-fourth of the term or amount of punishment imposed by the court for a crime of small or moderate severity;
- at least one third of the term or amount of punishment imposed by the court for a serious crime;
- at least half of the sentence imposed by the court for a particularly serious crime that does not involve an attempt on human life.;
- at least two thirds of the sentence imposed by the court for a particularly serious crime involving an attempt on human life.

The possibility of parole from serving a sentence is a powerful incentive for convicts to behave positively. People who stumble have hope and a desire to change for the better in order to return to a normal life.

However, in order to give a clear definition of the concept of parole, which, unfortunately, is not included in domestic legislation, it is necessary to reveal its essence.

It is well known that upon parole, the further execution of a criminal sentence is terminated until the sentence imposed on the convicted person is served and his goals of correction are achieved. At the same time, a kind of probation period is established for the released person, during which he must confirm his correction, namely, not to commit new crimes or violate public order, for which administrative penalties may be imposed on him, and not to evade the duties assigned by the court. Violation of the conditions of the probation period leads to the resumption of the execution of the imposed punishment.

## **2. Controversial issues of parole from punishment**

Conditional early release from punishment may be complete or partial. Upon full release, the convicted person is released from both basic and additional punishment, if it was imposed. Upon partial release, the execution of the additional punishment continues.

The issue of the legal nature of parole is controversial.

According to the first point of view, parole is one of the stages of execution of punishment. For example, in the progressive system of serving imprisonment that existed in Australia in the first half of the 19th century, a legal regime similar to parole was established for the last stage of serving a sentence, preceded by solitary confinement and joint imprisonment. This last

stage was characterized by significant restrictions on the rights and freedoms of convicts and increased supervision over them. In such a system, parole actually served as a continuation of the prescribed punishment (Babette Smith, 2010).

According to another point of view, parole actually represented an amendment to the verdict of the court. Hritz, Amelia (2021) notes that a court verdict can only be changed in a special procedural order and by a higher court, and the issue of parole is decided by a court of the same level as the verdict, and that “parole does not shake the stability of the sentence.” According to her opinion, conditional early release from punishment “consists in early termination of serving a sentence, provided that the released person complies with the requirements restored by law during the probation period” (Hritz, 2021).

Conditional early release from punishment can also be considered as a subjective right of the convicted person, or as one of the types of criminal law encouragement, or is the most effective intersectoral measure to stimulate law-abiding behavior of convicts in the process of serving a criminal sentence.

The closest and most acceptable definition is that conditional early release from punishment is release from serving a sentence on condition that a new crime is not committed during the unserved part of the punishment and that the duties imposed on the person by the court are fulfilled.

According to the Annex to Recommendation No. Rec (2003) 22 of the Committee of Ministers of the Council of Europe “On parole”, which was adopted on September 24, 2003 at the 853rd meeting of the Cabinet of Ministers, parole is a public measure – it is “the release of a person serving a custodial sentence earlier than the appointed time with the imposition of a person, taking into account the specifics of his personality, has duties that he must fulfill after his release.” Its application is covered by the European Rules on Public Sanctions and Measures contained in Recommendation No. R (92) 16, as well as Recommendation Rec (2000) 22 “On improving the effectiveness of the application of European Penitentiary Rules in public sanctions and measures”.

The opinion of Domestic scientists is interesting. For example, A. I. Ashirbekov (2008) considers conditional early release to be a commutation of punishment, that is, to the imposition of a milder type of punishment than is provided for this crime. He notes that the term “substitution” is used to characterize phenomena (processes) that are different in nature. In one case, “replace” means to become equivalent to some phenomenon, object (for example: a book replaced all his pleasures), in another it means that one phenomenon replaces another, previously functioning, used (for example:



replace the secretary with a new one). In criminal law, the term “substitution” is used mainly in its second meaning. With regard to the institution of punishment, this means that instead of the punishment previously imposed by the court verdict, a different type of punishment is imposed on the convicted person. Thus, the substitution of punishment under criminal law covers only cases where the court replaces a previously imposed sentence with a different type of criminal punishment.

A distinctive feature of the substitution of punishment under criminal law is that as a result of the substitution of punishment for a convicted person, another, milder or more severe type of criminal punishment is determined.

According to research by scientists such as Low, A., & Rogers, P. (2019), parole is not only a form of punishment, but also an important element of rehabilitation that allows convicts to return to society under certain conditions, which contributes to their social recovery. They emphasize that parole should be based on the principle of individualization of punishment, which is also confirmed by the concept proposed by John Bennett (2021). He argues that each convict has unique circumstances that must be taken into account when deciding on his early release.

As noted by A. B. Skakov (2004): “parole (of course, it is from serving imprisonment) can be considered an element of a progressive system of serving this type of punishment.” He also points out that the specifics of parole, as an element of a progressive system, is that its implementation goes beyond the actual punishment, but does not go beyond the implementation of criminal responsibility as an integral part of social control (Skakov, 2004).

### **3. Correction of the convicted person as one of the grounds for the application of conditional early release from punishment**

Parole is a comprehensive criminal law institution, as it is regulated by the criminal law norms of the criminal code (articles 72, 73, 86 and 87), penal enforcement (articles 161, 162 and 169) and criminal procedure (articles 476, 477, 478 and 480) of the legislation of the Republic of Kazakhstan and international regulatory legal acts. This is also indicated by the Normative Resolution of the Supreme Court of the Republic of Kazakhstan (2015) "On judicial practice of conditional early release from serving a sentence, replacement of the unserved part of the sentence with a milder type of punishment and reduction of the term of the imposed punishment, and our analysis of scientific and specialized literature.

I. S. Borchashvili (2021) and G. S. Dzhumashev (2017) also write about this. The latter adds that “Formal and material grounds are necessary for the

application of parole (Dzhumashev, 2017). The formal reason is that the probation period has been reduced. The material basis for parole is the correction of the convicted person. The correction of a convicted person is a complex psychological, pedagogical and socio-legal category. In modern criminal law and penitentiary science, two main approaches to the concept of correction have been preserved – the moral correction of convicts and the legal correction of convicts. When we talk about correcting a convicted person, we mean moral correction. The moral correction of a convicted person should be understood as changes in the spiritual, moral, emotional, volitional, and motivational-need spheres of the convicted person's personality that occurred as a result of a comprehensive educational impact on him during the period of serving his sentence, as a result of which the behavior of the convicted person becomes socially adaptive.”

The legal correction of a convicted person, as the goal of criminal punishment, is considered achieved if the convicted person does not allow criminal recidivism, which is the legal nature of the purpose of punishment provided for in Part 2 of Article 39 of the Criminal Code of the Republic of Kazakhstan, namely, the correction of the convicted person. Thus, the purpose of punishment in the form of correction is considered achieved if the convicted person ceases to pose a public danger to society or the degree of this danger is so low that the actual execution or continuation of serving the sentence is impractical. Penal correction is a means of achieving this goal. Research shows that the most important factor in correcting a convict is his attitude to punishment.

The process of convict correction takes place in two stages. The first one begins during the preliminary investigation, but it takes place more intensively during the court session. The second begins when a specific type of punishment is imposed and proceeds during its execution, that is, for example, when serving such a type of punishment as imprisonment, the main means of correction are the regime of serving imprisonment, socially useful work, education, and educational work. Other means of corrective action provided for by the penal enforcement legislation are also used.

The purpose of correcting a convicted person is closely related to the purpose of restoring social justice. If the punishment imposed is excessively harsh or undeservedly lenient, this will not only hinder the restoration of social justice, but also harm the process of correcting the convicted person, since undeservedly harsh punishment will make him tougher, and excessively lenient punishment will give him confidence that he can continue to commit crimes, circumvent the deservedly harsh punishment. punishment.

Thus, the correction of a convicted person is the most important goal of criminal punishment and is important both socially and in the criminal law

sense. Its social significance is expressed, first of all, in the recognition of the possibilities of society and the state to carry out real correction of the offender, and the criminal law value is expressed in the fact that a number of articles of the criminal law as a prerequisite (condition) for their application provide for the achievement of this goal. Thus, in accordance with art. 72 of the Criminal Code of the Republic of Kazakhstan, which regulates the procedure for parole from serving a sentence, the conditions for its application are precisely the purpose of correcting a convicted person, based on the fact that in order to achieve it, a person serving a sentence for a committed crime does not need to serve it completely.

The normative resolution of the Supreme Court of the Republic of Kazakhstan No. 6 “On judicial practice of conditional early release from serving a sentence, replacement of the unserved part of the sentence with a milder type of punishment and reduction of the term of the imposed punishment” dated October 2, 2015 does not give a specific concept of what is meant by the correction of a convicted person, although some explanations are given regarding this concept (2015).

Thus, paragraph 2 states that the court determines whether the convicted person had serious violations of the regime of serving his sentence and fully compensated for the damage caused by the crime, “then in accordance with the second paragraph of the first part of Article 72 of the Criminal Code, he is subject to parole without any additional conditions.” At the same time, we are confused by the word “malicious”. That is, if the convicted person still has a violation of the regime of serving, then he has a chance, if there are additional conditions for parole. Moreover, according to art. 72 of the Criminal Code of the Republic of Kazakhstan, it is only the court that recognizes whether or not a convicted person needs to fully serve his sentence in order to correct himself.

According to V. F. Lapshin (2015): “Correction is expressed in the fact that the convict does not allow violations of the regime of the correctional institution, takes an active part in public life, acquires a new specialty, improves his qualifications, etc. In the presence of such circumstances, the process of correcting a convicted person can be completed outside the prison, which is a significant incentive for the law-abiding behavior of the person who committed the crime.” And in this we agree with him that the essence of correcting all of the above, including we want to focus specifically on the prevention of violations of the regime of serving sentences, and not on their malicious violation.

When deciding on parole, the court must check, among other things, the data characterizing the behavior of the convicted person, his attitude to work

and education during the entire time of serving his sentence, that is, “evaluate positive changes in the behavior of the convicted person.”

When assessing the behavior of a convicted person, the courts must take into account: compliance with internal regulations, compliance with the requirements of the administration of the institution of the penitentiary system, participation in educational activities and in the public life of the institution, encouragement, punishment, maintaining relations with relatives and convicts, positive or negative attitude towards studies, compensation for damages, transfer to facilitated conditions of detention and other circumstances that may indicate the correction of the convicted person.

The court’s conclusion on the correction of a convicted person should be based on a comprehensive accounting of data on his behavior not only for the time immediately preceding the consideration of the petition, but also for the entire period of his stay in the institution, including the time in custody before sentencing.

However, it is not considered what the correction includes. Correction is, first of all, law – abiding behavior, which includes the execution and observance of not only legal norms, rules of the dormitory, but also norms of morality and ethics of behavior, compliance with internal regulations, requirements of the regime of serving a sentence, high-quality performance of assigned work, active participation in all public events of institutions of the penal correction system, improvement of general education. There are other things, as well as, first of all, sincere repentance not only for committing a specific crime, but also for committing other illegal acts. Moreover, in our opinion, sincere repentance indicates a change in the convict's inner world, his views on life, in which he is aware of his behavior and attitude to his actions. And if the regime of serving a sentence is violated again, it is unlikely that the convicted person can say that he realized his behavior, attitude to life, to his actions, repented of committing illegal actions.

Thus, we propose to include the concept of correction in paragraph 9 of the Normative Resolution "On the judicial practice of conditional early release from serving a sentence, replacement of the unserved part of the sentence with a milder type of punishment and reduction of the term of the imposed punishment" and give it in the following wording: “Correction is considered law-abiding behavior of a convicted person, which includes the execution and observance not only of legal norms, rules of the dormitory, but also and the norms of morality and ethics of behavior, compliance with the rules of internal order, the requirements of the regime of serving a sentence, high-quality performance of the assigned work, active participation in all public events of institutions of the penal correction system, improvement of

the general education level and other circumstances that may indicate the correction of the convicted person, as well as, first of all, sincere repentance not only for committing a specific crime, but also for committing other illegal acts” (Normative decision, 2015).

We consider it necessary to exclude the word “malicious” from paragraph 2 of this Regulatory Resolution, because a violation is already an act or omission that contradicts the requirements of legal norms, in this case the requirements of the regime of serving a sentence, and give it in the following wording: “If the court finds that, along with the actual serving of the term of punishment provided for by law, the convicted person had no violations of the regime of serving a sentence and fully compensated for the damage caused by the crime, then in accordance with In the first paragraph of the first part of Article 72 of the Criminal Code, he is subject to parole without any additional conditions.”

In connection with the above, we propose to amend Article 72 of the Criminal Code of the Republic of Kazakhstan, combining paragraphs 1 and 2, and to give the following wording: “A person serving a restriction of liberty or imprisonment, after actually serving the terms specified in parts three, four and five of this article, may be released by a court on parole, in in case of complete correction and compensation for the damage caused by the crime, without any additional conditions.”

At the same time, in domestic legislation, as mentioned above, parole is applied to persons serving restriction of liberty or imprisonment for crimes, including serious and especially serious corruption crimes, and for terrorist or extremist crimes (Part 1 of art. 72 of the Criminal Code of the Republic of Kazakhstan). According to the latest crimes, it should also be taken into account that they did not result in the death of people and were not committed with a particularly serious crime, as well as if the convicted person actively assists in the prevention, disclosure or investigation of terrorist or extremist crimes, exposing members of a terrorist or extremist group. Persons serving prison sentences for grave and especially grave corruption offenses must comply with all the conditions of the procedural cooperation agreement, and only in this case can they be released by the court on parole after actually serving the specified terms.

According to Part 1 of Article 44 of the Criminal Code, restriction of freedom is imposed on those convicted of crimes without isolation from society at their place of residence, with probation supervision for a period of six months to seven years and forced labor for one hundred hours annually during the entire term of serving their sentence. However, the legislation does not specify for which specific types of crimes restriction of freedom is imposed. Most likely, for any socially dangerous act (action or omission) that

is prohibited by this Code (Part 2 of Article 10 of the Criminal Code of the Republic of Kazakhstan).

In our opinion, restriction of freedom is already a kind of exemption from punishment for a committed crime, although it is a kind of punishment. This is also confirmed by the fact that this measure has its own regime in the form of a probation period involving forced labor, the imposition of certain duties that restrict a person's rights (not to change their place of residence, work, study, not to visit certain places, undergo medical treatment, provide financial support to the family, and so on). In this aspect, conditional early release is a substitution of punishment (changing the previously imposed criminal punishment by a court verdict to another type), with the same assigned duties, with the exception of forced labor.

In turn, according to Part 5 of Article 46 of the Criminal Code of the Republic of Kazakhstan, imprisonment is imposed:

- persons convicted of crimes committed through negligence; persons convicted of crimes not related to the use of violence provided for in Chapters 7, 8, 9, 12 and 13 of the Criminal Code; persons convicted of crimes provided for in Chapter 15 of the Criminal Code, in case of full compensation for the damage caused by the crime; persons who for the first time convicted of committing an intentional crime for which a sentence of up to two years' imprisonment has been imposed;
- persons sentenced to imprisonment for a term of more than two years for committing intentional crimes of minor, moderate gravity or serious crimes who had not previously served their sentence; women who have committed a particularly serious crime, as well as in case of recidivism; persons to whom fines, correctional labor, community service, restriction of liberty have been replaced by imprisonment persons sentenced to imprisonment for committing crimes provided for in parts 1-1, 2 and 3 of Article 366, parts 2 and 3 of Article 367, part 2 of Article 368 of the Criminal Code;
- men who have been sentenced to imprisonment for the first time for committing particularly serious crimes; persons who have been sentenced to imprisonment for crimes against the sexual integrity of minors, with the exception of persons who have committed a crime under the age of a minor, as well as men with a dangerous relapse of crimes or sentenced to life imprisonment; persons sentenced to imprisonment who previously served imprisonment for committing an intentional crime, with the exception of persons convicted of non-violent crimes provided for in Chapters 7, 8, 9, 12 and 13 of the Criminal Code, as well as persons convicted of crimes provided for in Chapter 15 of the Criminal Code, in

- case of full compensation of the damage caused by the crime; men convicted of recidivism; women – in case of dangerous recidivism;
- for dangerous recidivism of crimes, as well as for persons sentenced to life imprisonment.

In case of life imprisonment, a person may be released on parole if the court finds that he does not need to continue serving this sentence after serving at least twenty-five years of imprisonment. If a person serving a life sentence has fulfilled all the conditions of the procedural agreement, then he is released on parole after actually serving at least fifteen years of imprisonment.

We also note the fact that imprisonment upon the conclusion of a court on the possibility of correcting a convicted person without serving a sentence may also be a suspended sentence (Part 1 of Article 63 of the Criminal Code of the Republic of Kazakhstan). In this case, the punishment is imposed, but it is not actually executed, being a kind of release from punishment, but not from serving the appointed punishment.

Thus, taking into account the above opinions of scientists, the analysis of normative legal acts regulating the application and execution of sentencing and measures for release from serving a sentence should define the concept of conditional early release from serving a sentence as a criminal law institution.

We believe that conditional early release from serving a sentence is a measure of state encouragement for the early release of a person from serving a sentence on the basis of a court, taking into account his correction, full compensation for the damage caused by the crime, who fulfilled all the conditions of the procedural cooperation agreement, after actually serving the terms specified in the law, as well as with the condition of non-fulfillment of new violations and the prevention of malicious evasion from fulfilling the duties imposed by the court during the probation period (the unserved part of the punishment). It is advisable to include this definition in Article 3 of the Criminal Code of the Republic of Kazakhstan “Clarification of certain concepts contained in this Code”.

In addition, we would like to note that the majority of law enforcement officers (61.8%), judges (71.4%) and prosecutors (75%) surveyed by us support this definition. Of these, 42.8% of judges surveyed, 46.7% of prosecutors, and 38.7% of law enforcement officials believe that the legal nature of parole is actually release from serving a sentence on the basis of a court, provided that the released person complies with the requirements established by law during the probation period, as well as as a form of state criminal law encouragement (respectively, 28.6% of judges, 28.3% of prosecutors, 23.1% of law enforcement officers). The fact that the institution

of parole is an element of a progressive system of execution of punishment is considered by 14.3% of judges, 8.3% of prosecutors and 9% of law enforcement officers, and 14.3%, 10% and 21.6%, respectively, is a way of serving a sentence, that is, one of the stages of execution of punishment. Only 7.6% of police officers noted otherwise, without specifying what exactly.

58.1% of police officers, 100% of judges and 71.7% of prosecutors believe that the institution of parole is very necessary, it plays a big role, the rest – that it is not needed, its importance is not great. However, 66.8% of police officers, 78.6% of judges and 90% of prosecutors believe that the institution of parole needs to be reformed, namely, to adjust regulations. For example, to take stricter measures in case of repeated commission of a crime by a person released on parole, to introduce a strict ban on the use of alcoholic beverages and narcotic drugs by persons released on parole.

In addition, 6.5% (117) of district police inspectors believe that it is necessary to cancel parole altogether, others – to cancel only for particularly serious crimes (murder, sexual crimes, fraud on a large scale), every second polled police officer suggests tightening parole, especially control, and transferring it completely to the probation service, unloading the precinct officers. police inspectors. There have also been proposals to increase the staff of supervision officers, or to introduce a specific contractor into the system – an inspector for the supervision of parolees or additional control by specialized specialists, transfer everything to the penal enforcement system or create adaptation centers for parole with the involvement of specialized specialists who will provide various assistance, including to improve the financial situation of persons who have been released on parole, employment, or the right to choose a profession.

Moreover, such proposals have been made to reform the institution of parole:

1. Strengthen the restrictions and obligations of parole officers, in terms of leaving their homes only for work or study, or 100% to issue electronic tracking devices.
2. To introduce a separate article in the Code of Administrative Offences of the Republic of Kazakhstan for violation of restrictions.
3. Enter data into the Berkut database upon release from prison by employees of institutions.
4. Specify the number and list of articles of the Code of Administrative Offences of the Republic of Kazakhstan for which the cancellation of parole is possible.
5. Prohibit the use of conditional early release in relation to persons who have already had their parole revoked once.



6. Transfer preventive control over persons on parole to the probation service, since in fact the person released on parole has not served his sentence.
7. When released on parole from serving a sentence, the term of stay at liberty should be calculated as 2 days at liberty for 1 day not served in a correctional institution.
8. To introduce an electronic control file for the convenience of management and control by the supervising departments.

At the same time, it was noted that parole is the most effective measure to stimulate the law-abiding behavior of convicts in the process of serving a criminal sentence. As indicated by:

- 100% of judges, noting the average level – 92.8%, high – 7.2%;
- 66.7% of prosecutors, indicating the average level – 56.7%, high – 10%. 33.3% indicated a low and extremely low level;
- 77.9 % of employees of the internal affairs bodies, the average level is 47.5%, the highest is 30.4%. 22.1% indicated a low and extremely low level;
- 97.2% of the parolees surveyed, where 66% (1196) noted a high level of efficiency of parole and 31.2% - an average level of efficiency. Only 2.8% indicated a low and extremely low level of effectiveness of parole

The surveyed respondents are mostly men (judges – 78.6%, prosecutors – 86%, police officers – 97.3%), with higher legal education (judges – 96.4%, prosecutors – 96.5%, police officers – 90.6%). Higher non-legal education – 3.5% are prosecutors and 2.8% are police officers, the rest have secondary specialized education (1 assistant judge and 6.6% or 118 police officers). The prevailing average age among prosecutors and police officers is from 31 to 40 years – 43% and 48.5%, respectively. Judges aged 40 to 50 years – 42.8% and over 50 years – 42.8%, 3.6% – less than 25 years and 10.8% – 31-40 years. Also, the age of the interviewed prosecutors is less than 25 years for 2 people, from 26 to 30 years – 27 (31.4%), from 40 to 50 years – 20 (23.2%). 194 people (10.8%) are under 25 years old, 21.6% are 26-30 years old, 18.4% are 40-50 years old, and 12 people (0.7%) are over 50 years old.

50% of judges, 2.3% of prosecutors and 1.7% of police officers have a total work experience of more than 25 years. Also, judges have a work experience of 20-25 years – 14.3%, 15-20 years – 28.6%, from 1 to 5 years – 7.1%. And 7.1% have less than 1 year of judicial experience, 28.6% have 5-10 years, 21.4% have 10-15 years, 28.6% have 15-20 years, and 14.3% have more than 25 years.

The total work experience of prosecutors is 20-25 years -14%, 15-20 years – 12.8%, 10-15 years – 25.6%, 5-10 years – 30.2%, from 1 to 5 years

– 25.6%, less than 1 year – 2.3%. 27.9% have work experience in office less than 1 year, from 1 year under 5 years – 25.6%, 5-10 years – 24.4%, 10-15 years – 9.3%, 15-20 years – 9.3%, 20-25 years – 2.3%, over 25 years – 1.2 %.

The total work experience of ATS employees is 20-25 years – 8.2%, 15-20 years – 19.5%, 10-15 years – 26.5%, 5-10 years – 24.9%, from 1 to 5 years – 14.4%, less than 1 year – 4.9%. 14% have less than 1 year of work experience, from 1 year to 5 years – 32.8%, 5-10 years – 24.7%, 10-15 years – 16.5%, 15-20 years – 8.4%, 20-25 years – 3%, over 25 years – 0.5% (9 people).

District judges, regional judges, investigative judges, juvenile judges, judges of inter-district courts and 1 assistant judge took part in the survey. The survey included heads of departments, deputy heads of departments, district, regional and city prosecutors, senior prosecutors, prosecutors and assistant prosecutors. 84.6% of district police inspectors (1,513), 5 investigators, 30 heads of administrative police and probation service departments, 50 assistant district police inspectors, as well as 190 other police and probation service officers participated in the survey.

#### **4. Conclusion**

Thus, based on all of the above, in conclusion, we come to the following conclusions and suggestions:

1. The institution of parole occupies an important place in the system of criminal law punishment, since the main basis of a person's parole is his correction and, consequently, re-education. In addition, an important goal of punishment is the correction or re-education of the defendant based on the principles of legality, morality, justice and individualization of punishment.
2. We propose to amend the Regulatory Resolution “On the judicial practice of conditional early release from serving a sentence, replacing the unserved part of the sentence with a milder type of punishment and reducing the term of the imposed punishment”:
  - include the concept of correction in the paragraph 9 and give it in the following wording: “Correction is considered to be the law-abiding behavior of a convicted person, which includes the execution and observance of not only legal norms, rules of the dormitory, but also norms of morality and ethics of behavior, compliance with internal regulations, requirements of the regime of serving a sentence, high-quality performance of assigned work, active participation in all public

events, institutions of the penal enforcement system, improvement of the general education level and other circumstances that may indicate the correction of the convicted person., and also, first of all, sincere repentance not only for committing a specific crime, but also for committing other illegal acts”;

- in paragraph 2, delete the word “malicious”, since a violation is already an act or omission that contradicts the requirements of legal norms, in this case, the requirements of the regime of serving a sentence, and give it in the following wording: “If the court establishes that, along with the actual serving of the term of punishment provided for by law, the convicted person had no violations of the regime of serving a sentence. if he has fully compensated for the damage caused by the crime, then in accordance with the first paragraph of the first part of Article 72 of the Criminal Code, he is subject to parole without any additional conditions.”
3. Combine the 1st and 2nd paragraphs of Part 1 of Article 72 of the Criminal Code of the Republic of Kazakhstan and give the following wording: “A person serving a restriction of liberty or imprisonment, after actually serving the terms specified in parts three, four and five of this Article, may be released by a court on parole, in case of full correction and compensation damage caused by a crime, without any additional conditions.”
  4. The definition of “conditional early release from serving a sentence” should be included in art. 3 of the Criminal Code of the Republic of Kazakhstan “Clarification of certain concepts contained in this Code” in the following wording: “conditional early release from serving a sentence – This is a measure of state encouragement for the early release of a person from serving a sentence on the basis of a court, taking into account his correction, full compensation for the damage caused by the crime, who fulfilled all the conditions of the procedural cooperation agreement, after actually serving the terms specified in the law, as well as on condition of non-commission of new offenses and prevention of malicious evasion from fulfilling the duties assigned by the court., during the probation period (the unserved portion of the sentence).”

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# *Shadow economy dynamics: A comprehensive assessment of tax compliance strategies*

by *Vilayat Ismayilov\**, *Nizami Gafarov\*\**, *Elshan Ibrahimov\*\*\**

## *Abstract*

The study aims to conduct an in-depth analysis of strategies to improve tax compliance in a dynamic shadow economy. The study addressed the problem of the shadow economy, which poses a serious threat to the economies of both developed and developing countries. In countries with high levels of shadow economy, budgets face deficits, forcing governments to raise taxes or borrow money, slowing economic growth. The anonymity of cryptocurrency transactions hinders tax liability tracking, thus creating additional challenges for tax authorities. The study employed data on the countries with the largest number of cryptocurrency holders and analysed their impact on financial stability. In countries with a high level of social cohesion, taxpayers tend to follow official rules, while in countries with low trust in government institutions, informal networks can facilitate tax evasion. The study cited successful tax legislation strategies from various countries, such as Estonia, Germany and Australia, and provided recommendations for optimising tax policy in Azerbaijan. These recommendations include increasing transparency, simplifying tax administration, fighting corruption, reducing the tax burden and encouraging legal economic activity.

*Key words:* financial regulation, transparency of transactions, informal networks, fiscal risks, digital currency.

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## 1. Introduction

The shadow economy significantly impedes global governance, undermining sustainable economic development and social welfare. Despite governmental and international interventions, its persistence results in substantial revenue losses and compromises fiscal sustainability. The shadow economy's prevalence stems primarily from excessive tax burdens and regulatory complexity, which incentivize evasion and foster parallel extralegal economic structures that threaten stability, equity, and sustainable growth. Extant tax non-compliance interventions encompass fiscal instruments, control mechanisms, and incentive frameworks. Theoretical tax legislation scholarship advocates for integrated approaches combining punitive measures with cooperative strategies to foster societal advancement. Shadow economy research emphasizes efficacy assessment of diverse taxation approaches, with successful implementations typically integrating fiscal incentives, administrative modernization, and educational initiatives. The implementation of technological innovations and process automation reduces administrative burden while enhancing accessibility (Niyazbekova et al., 2023). Concurrently, financial literacy promotion cultivates positive taxpaying attitudes among constituents.

Ginevicius et al. (2020) highlighted the importance of trust in the state and institutions in improving tax compliance. The authors noted that countries with a high level of trust in the government have a lower level of shadow economy. Petranov et al. (2022) addressed the scale and factors of the shadow economy in their research. Kelmanson et al. (2019), in turn, argue that reducing the tax burden and simplifying tax procedures can significantly reduce the size of the shadow economy, as businesses and individuals will be less likely to evade taxes. Taing and Chang (2020) addressed institutional and structural factors that influence tax behaviour.

Broughel and Thierer (2019) addressed the role of technological innovation in improving tax policy. Demirhan (2019) also argued that the introduction of information technology, such as electronic tax systems and blockchain, can significantly increase the transparency and efficiency of tax administration. Němec et al. (2021) studied the relationship between tax legislation and the level of corruption. Reducing the level of corruption in government agencies helps increase tax discipline. Erdoğan and Akar (2022) noted that short-term tax amnesties can stimulate voluntary income declaration, but systemic changes in tax policy are needed for a long-term effect. Mammadli and Zeynalova (2021) investigated the role of tax education and awareness, arguing that programmes to improve financial literacy and raise awareness of tax obligations contribute to increased tax



compliance. Lukáč and Simonidesová (2020), in turn, addressed the international aspects of tax policy, covering the issues of cross-border tax evasion.

Research demonstrates diverse strategies for addressing tax non-compliance and the shadow economy that align with sustainable economic principles. Evidence indicates the necessity of a comprehensive approach combining regulatory enforcement with incentives to enhance tax culture and institutional trust. Despite substantial scholarship, several areas remain underexplored: cryptocurrency's influence on tax evasion mechanisms, the role of informal social networks in shaping taxpayer behavior, and the interactive effects of combined policy interventions. While individual regulatory measures have received thorough examination, the synergistic impacts of integrated approaches warrant further investigation. The research endeavors to conduct a comprehensive evaluation of shadow economy dimensions for tax policy optimization, considering contemporary challenges and economic contexts. It specifically examines how digital currencies and psychological determinants influence tax compliance behavior and shadow economic activity. Furthermore, it investigates the efficacy of diverse fiscal and non-fiscal policy instruments, alongside international tax agreements, within the framework of existing tax legislation.

## **2. Materials and Methods**

Statistical data on the share of the shadow economy in the gross domestic product (GDP) of various countries were obtained from World Economics (2024) reports. The information on tax evasion losses as a percentage of total tax revenues was taken from Statista (2020) statistical reports, which were used to assess the effectiveness of tax systems in different countries. Data on the percentage of the population that owns cryptocurrency was provided by Triple-A, and Chainalysis reports were used to study the use of cryptocurrencies in illegal activities (Triple-A, 2024). Official documents and reports of Azerbaijani and other governmental authorities on tax administration and control, such as data from the Ministry of Taxes of Azerbaijan and Common Reporting Standard (CRS) reports on international cooperation in the exchange of tax information, were also important sources of information. Additionally, documents and reports of international organisations such as the Organisation for Economic Co-operation and Development (OECD) were studied to determine global trends and best practices in tax administration.

The statistical analysis quantified shadow economy prevalence across nations and associated tax revenue losses. Cross-country comparisons revealed effective taxation strategies in Estonia, Germany, Australia, and the United Kingdom, where digital technologies enhance administrative efficiency and transparency. These practices informed recommendations for Azerbaijan's context.

The research evaluated Azerbaijan's shadow economy reduction initiatives, including fiscal reforms, administrative measures, technological implementations, and educational programs. The analysis encompassed tax rate adjustments, procedural simplifications, electronic filing systems, and enforcement mechanisms. The study addressed how informal social networks influence tax compliance behavior, recognizing sociocultural determinants of tax morale. International best practices were examined for their adaptability to Azerbaijan's circumstances. The investigation assessed existing tax literacy programs and awareness campaigns, evaluating their effectiveness and proposing enhancements.

### **3. Results**

The shadow economy is one of the most significant and complex issues for economies around the world, including both developed and developing countries, and its sustainable management remains a challenge. It covers a wide range of illegal and informal economic activities, such as tax evasion, illegal employment, smuggling and corruption. One of the most obvious and significant problems of the shadow economy is its impact on public finances. When businesses and individual entrepreneurs evade taxes, the state loses a significant portion of revenue that could be used to finance public services and infrastructure projects (Dankevych et al., 2023). The low level of trust in state institutions also contributes to the spread of corruption, which exacerbates the problem. Workers in the shadow sector are often deprived of social guarantees such as pensions, health insurance and paid leave (Kudrenko & Hall, 2024). This creates significant risks to their well-being and increases social vulnerability. In addition, companies operating in the legal sector are forced to compete with shadow businesses, which have a competitive advantage due to tax evasion and lower labour costs, thereby challenging the sustainability of fair competition (Musayeva et al., 2024a; 2024b). High taxes and complex tax procedures increase incentives for evasion as economic agents seek to minimise their costs. At the same time, the lack of transparency and poor administration of the tax system

contributes to the growth of the shadow economy. Figure 1 shows the level of the shadow economy in different countries.

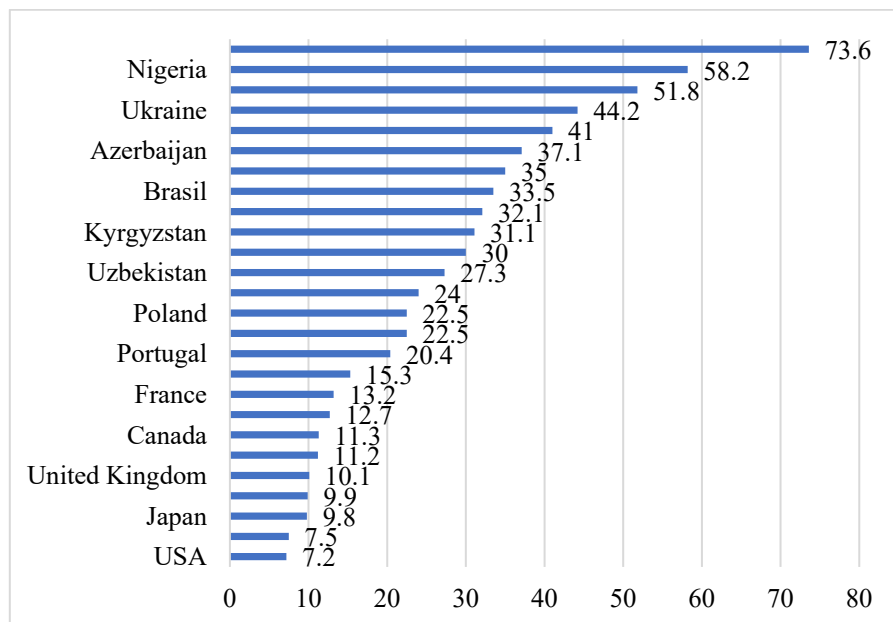


Figure 1 - Share of the shadow economy in different countries (% of GDP)

Source: based on the data from World Economics (2024).

Nations exhibiting minimal shadow economic activity (US: 7.2%, Switzerland: 7.5%, Japan: 9.8%) demonstrate robust socioeconomic stability and efficient taxation mechanisms. These environments foster legitimate economic participation, facilitating sustainable development. Moderate shadow economy countries (Portugal: 20.4%, Poland: 22.5%, Italy: 24%) maintain relative stability regarding tax revenue and regulatory oversight, generally supported by developed economic frameworks and established tax compliance cultures. Conversely, jurisdictions with substantial shadow economies (Azerbaijan: 37.1%, Moldova: 41%, Nigeria: 58.2%) confront significant governance challenges. Contributing factors may include administrative deficiencies, political volatility, economic opacity, and limited financial service accessibility for small and medium enterprises. Figure 2 shows the level of tax evasion by country.

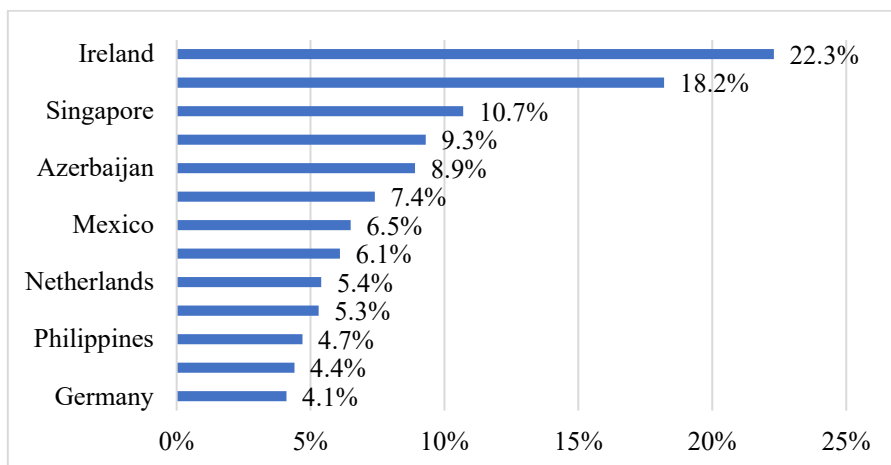


Figure 2 - Share of annual losses due to tax evasion in total tax revenues  
 Source: based on the data from Statista (2020).

The level of losses from tax evasion varies depending on the country and the effectiveness of its tax system, often impacting sustainable economic growth. Countries with low loss rates, such as Germany and Indonesia, demonstrate successful tax administration models that can be an example for other countries. Countries with high levels of losses, such as Ireland and Colombia, need significant reforms and improvements to their tax systems to reduce tax revenue losses.

Digital currencies, particularly cryptocurrencies, have emerged as a significant economic phenomenon globally (Kyrychok et al., 2020). These decentralized, often anonymous exchange media serve diverse purposes – both legitimate and illicit – with implications for sustainable development. Bitcoin, Ethereum, and other cryptocurrencies offer users considerable anonymity (Marmora, 2021). A primary concern regarding cryptocurrencies is their utilization in illicit transactions – facilitating payments for illegal goods/services, tax evasion, and money laundering. Despite regulatory efforts across numerous jurisdictions, criminal actors continue exploiting these technologies. Concurrently, cryptocurrencies maintain legitimate applications as investment vehicles and cost-effective mechanisms for international transfers. Figure 3 identifies nations with the highest cryptocurrency ownership rates, which face elevated financial sector stability risks.

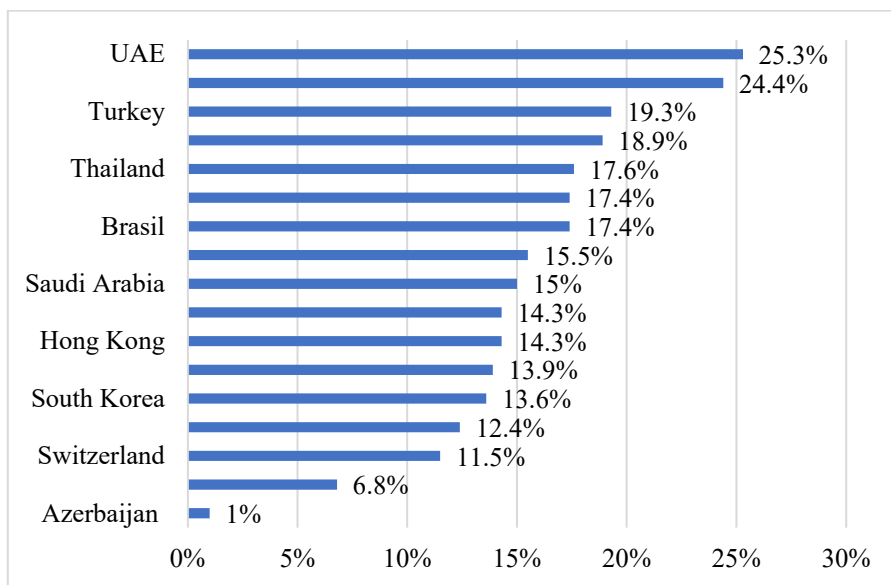


Figure 3 - Share of the population owning cryptocurrencies in 2023

Source: based on the data from Triple-A (2024).

Singapore (24.4%) and the UAE (25.3%) exhibit the highest cryptocurrency ownership rates globally. This prominence derives from digital innovation interests, inadequate banking infrastructure rendering cryptocurrencies advantageous, and governmental promotion of blockchain technologies. Cryptocurrency adoption varies significantly across nations based on economic, social, and regulatory environments. Higher adoption rates frequently occur in economically unstable regions or areas with limited conventional financial access, where cryptocurrencies serve as alternative financial mechanisms (Kyrychok et al., 2024). Conversely, stable economies with developed financial systems typically view cryptocurrencies as investment vehicles and technological innovations.

According to a Chainalysis report, in 2023, about 0.34% of all cryptocurrency transactions were related to illegal activities, equivalent to approximately \$24.2 billion. For comparison, in 2022, about 0.42% of cryptocurrency transactions were related to fraud or illegal transactions, and in 2019 – 1.29%. Despite the efforts of many countries to regulate the cryptocurrency market with sustainable measures, criminal elements continue to find ways to use these technologies to their advantage. For instance, in recent years, the use of cryptocurrencies to hide tax revenues has increased significantly, especially among small and medium-sized

businesses looking for ways to minimise tax payments. For example, in the United States, the IRS requires taxpayers to disclose information about income received from cryptocurrency transactions. The European Union is also taking steps to tighten control over cryptocurrency transactions by introducing new regulatory requirements for crypto exchanges and other market participants (Spytska, 2023).

Informal social networks and communities play a significant role in shaping the tax behaviour of economic agents and can influence sustainable practices and sustainability in compliance. These networks and communities include family, friends, colleagues, professional associations and other groups that can influence individual and collective tax decisions. If it is customary in a community to evade or minimise tax liabilities through informal practices, individual members of that community may be inclined to follow these norms. This social pressure can lead to a wider spread of the shadow economy and a decrease in tax compliance (Kerimkulov et al., 2015). In countries with a high level of social cohesion and trust, such as the Scandinavian countries, taxpayers are more inclined to follow official rules and regulations, which leads to a high level of tax discipline. At the same time, in countries with a low level of trust in state institutions, such as Greece or Italy, informal networks can actively facilitate tax evasion (Shahini, 2024). In Azerbaijan, which has historically had strong informal networks and family ties, the influence of such communities on tax behaviour can be significant. Family and kinship ties can facilitate tax avoidance practices, especially in small and medium-sized businesses where informal arrangements and transactions are often the norm (Rexhepi, 2023).

This study examines tax legislation strategies for reducing shadow economies, categorized into fiscal measures, administrative reforms, technological innovations, and educational campaigns, often implemented in combination for maximum effectiveness. Fiscal measures encompass tax policy adjustments that diminish evasion incentives, including tax burden reduction, system simplification, and targeted incentives. Lower tax rates for SMEs decrease shadow economy participation motivation (Rexhepi et al., 2024). Simplified procedures and single tax schemes enhance system accessibility. Sector-specific tax incentives promote legitimate economic activity. Administrative reforms focus on enhancing tax administration efficiency and sustainability through strengthened control mechanisms, increased penalties, and institutional restructuring. Improved audit systems, expanded authority, and technological monitoring significantly enhance administrative efficiency and sustainability (Ismayil-Zada, 2022). Stricter financial and criminal penalties for non-compliance improve tax adherence. Organizational restructuring and anti-corruption initiatives increase

transparency and accountability. Technological innovations have become increasingly significant in tax administration (Peterson & Ketners, 2017). Electronic systems implementation, data analytics utilization, and procedural automation simplify taxpayer processes while increasing administrative transparency. Electronic filing platforms reduce errors and streamline processes. Advanced data analysis and machine learning facilitate more efficient identification of tax evasion patterns (Burmistrov et al., 2024).

Estonia has emerged as a digital tax administration pioneer, with electronic filing and payment systems dramatically simplifying procedures for all taxpayers. This Estonian model successfully minimizes bureaucracy and tax evasion opportunities, strengthening taxpayer trust and fiscal stability. Notably, over 95% of Estonian tax returns are filed electronically, demonstrating exceptional transparency and administrative efficiency. Germany prioritizes strengthened tax control through advanced data analysis technologies. Its taxation framework incorporates effective anti-fraud measures, including automated return verification and financial transaction monitoring systems. These mechanisms facilitate rapid identification of non-compliance, maintaining strict oversight of tax obligations, thereby reducing shadow economic activity and reinforcing public confidence. Germany's 2019 tax transparency legislation mandates automatic transfer of tax resident account information from financial institutions to authorities (Ermasova et al., 2019).

Australia focuses on tax legislation simplification and administrative barrier reduction. These approaches foster a conducive, sustainable business environment while strengthening the tax system's foundational integrity. Australia's Single Touch Payroll system (implemented 2018) requires real-time reporting of salary and tax data, increasing payroll transparency and reducing evasion opportunities. Additionally, Australia's annual Tax Time campaign utilizes multi-platform communications to promote timely tax compliance (Brown, 2020). The UK's Making Tax Digital (MTD) programme digitizes tax returns, offering taxpayers training resources and consultations on digital filing tools. Promoted through various media channels and partnerships, MTD has reduced tax return errors by 10% while increasing digital service adoption by 20% (Ketners, 2024).

Azerbaijan faces challenges from a substantial shadow economy that impedes national economic development by reducing tax revenues and enabling corruption. Many SMEs and entrepreneurs operate informally to avoid tax administration complexities and liabilities, resulting in unregistered economic activity that hampers effective tax policy implementation (Yarin et al., 2023). To address these issues, Azerbaijan has implemented several strategic measures. The electronic tax filing system

introduced in 2019 has simplified submission processes and reduced tax evasion by 15% according to the State Tax Department. Automated verification systems enhance compliance monitoring while electronic invoicing enables real-time transaction tracking, improving financial reporting transparency and tax calculation accuracy. Azerbaijan strengthened international cooperation by joining the OECD's Common Reporting Standard in 2020, enabling more effective financial flow analysis to identify evasion. Complementing these technological solutions, Azerbaijan conducted over 50 educational seminars for entrepreneurs in 2021, resulting in a 30% increase in electronic service adoption and a 7% improvement in voluntary compliance according to the Ministry of Taxes. Despite sustainability initiatives, Azerbaijan's high shadow economy necessitates tax system improvements and enhanced compliance monitoring. Azerbaijan's specific economic context requires tailored interventions focusing on transparency and administrative simplification to ensure accessibility across taxpayer segments. An integrated interagency data exchange system would enhance tax administration efficiency while reducing evasion opportunities. Combating corruption remains critical through strengthened accountability mechanisms, including stringent liability measures for tax officials and independent monitoring commissions. Public awareness campaigns highlighting corruption's negative effects and transparent taxation's benefits are essential for sustainability. Tax burden reduction and legal economic activity stimulation could be achieved through rate reforms optimizing small and medium enterprise obligations, potentially implementing progressive taxation and vulnerable taxpayer relief. Enhanced tax control effectiveness requires analytical tools for targeted, risk-based audits concentrating resources on problematic areas. Developing robust tax audit institutions, including independent audits for high-risk sectors, would strengthen compliance. Taxpayer education programs improving tax literacy and free consulting services for smaller businesses would further support compliance improvement efforts. International cooperation and information exchange are crucial components of effective tax administration. Through tax information exchange agreements with foreign jurisdictions, Azerbaijan can enhance its capacity to identify tax evasion and combat international avoidance schemes. Engagement with international bodies like the OECD provides valuable insights into tax administration best practices. Tax policy optimization and shadow economy reduction necessitate a multifaceted approach encompassing legislative reform, anti-corruption initiatives, enhanced transparency, and administrative simplification.



## 4. Discussion

Hoinaru et al. (2020) highlighted the correlation between the level of corruption and the size of the shadow economy. Scientists argue that high levels of corruption directly contribute to the growth of the shadow economy, creating favourable conditions for tax evasion and illegal economic activity. Baklouti and Boujelbene (2020) demonstrated that countries with low levels of corruption, such as the Scandinavian countries, have significantly lower levels of shadow economy. However, they focus on corruption as the main factor, while the current study also considers tax and administrative reforms as important aspects.

Ohnsorge and Yu (2022) studied the impact of cultural and historical factors on the level of the shadow economy. Studies show that in countries with a long history of informal economic practices, such as China and India, the shadow economy remains high despite modern reforms and measures to improve tax administration. Cultural habits and historical precedents play a significant role in shaping economic behaviour and influence the sustainable practices of a society (Jakubik et al., 2017). The current findings also recognise the importance of cultural factors, especially in the context of Azerbaijan.

High taxes and complex tax procedures increase incentives for evasion as economic agents seek to minimise their costs (Karimli et al., 2022). At the same time, the lack of transparency and poor administration of the tax system contributes to the growth of the shadow economy. Medina and Schneider (2019) also studied the impact of the tax burden on the level of the shadow economy. Huynh and Nguyen (2020), in turn, cited examples from Asian countries where the tax burden leads to a significant amount of illegal economic activity. The current research also highlights the importance of tax policy in shaping the shadow economy, especially in countries with high tax burdens and complex bureaucracies.

The empirical evidence indicates minimal shadow economic activity in the United States, Switzerland, and Japan, reflecting robust socioeconomic stability and tax system efficiency. These low metrics suggest economic actors predominantly operate within legal frameworks, fostering sustainable economic growth. Conversely, Afghanistan, Panama, and Nigeria exhibit substantial shadow economies, signaling governance challenges including tax compliance issues, corruption, and systemic opacity. Tax evasion losses vary significantly across jurisdictions; Germany and Indonesia demonstrate exemplary tax administration practices worthy of emulation, while Ireland and Colombia require substantial fiscal reforms to mitigate revenue leakage and enhance long-term sustainability.

Hanifah et al. (2024) addressed the impact of educational campaigns on the level of tax discipline. The results show that conducting information campaigns and educational programmes for taxpayers significantly improves the level of tax legislation and reduces the size of the shadow economy. The researchers cited examples of successful campaigns in Australia and the UK. The current study acknowledges the importance of educational campaigns to improve tax culture but does not place as much emphasis on this aspect. Cryptocurrencies have become a significant phenomenon in the global economy in recent years. Chen et al. (2021) addressed technological innovation as a way to reduce the shadow economy. Ma and Zhu (2022) also show that the introduction of electronic tax administration systems, such as electronic invoices and automated audit systems, significantly reduces the potential for tax fraud and increases the transparency of financial transactions. The current study also notes the importance of technological innovations, such as electronic tax systems and the use of big data, in improving tax administration and fostering sustainable practices.

In countries with a high level of social cohesion and trust, such as the Scandinavian countries, taxpayers are more likely to follow official rules and regulations, leading to a high level of tax compliance (Tynaliev et al., 2024). At the same time, in countries with a low level of trust in state institutions, such as Greece or Italy, informal networks can actively facilitate tax evasion, undermining long-term sustainability. Rossier and Ouedraogo (2024) also addressed the impact of social factors, such as the level of trust in state institutions and social cohesion, on the level of the shadow economy. Researchers determined that countries with a high level of social trust, such as Scandinavia, have a much lower level of shadow economy. The authors, similarly, to the current study, emphasised the importance of trust in state institutions and social trust in the formation of tax discipline. The coincidence lies in the recognition of the influence of social factors on the level of the shadow economy. Canh et al. (2020) studied the impact of globalisation and international cooperation on the level of the shadow economy. The research shows that countries actively participating in international tax information exchange initiatives, such as CRS and FATCA, have lower levels of shadow economy due to increased transparency and enhanced control over financial flows. The current study also emphasises the importance of international cooperation in the fight against the shadow economy.

## **Conclusions**

The study conducted a comprehensive assessment of various aspects of

the shadow economy that affect the economic development and sustainability of countries. The main problems of the shadow economy include a negative impact on public finances, a decrease in public trust in state institutions and increased social injustice and inequality. When a significant portion of economic agents evade taxes, honest taxpayers begin to perceive the tax system as unfair, which can lead to a further decline in tax compliance and the growth of the shadow economy.

The study examined examples of different countries with different levels of shadow economy. For instance, countries with a low shadow economy, such as the United States (7.2%), Switzerland (7.5%) and Japan (9.8%), demonstrate a high level of social and economic stability, as well as an efficient tax system. At the same time, countries with high levels of the shadow economy, such as Afghanistan (73.6%), Nigeria (58.2%) and Panama (51.8%), face serious problems in the areas of tax compliance, corruption and lack of transparency in their tax systems. Azerbaijan also has a high level of shadow economy (37.1%). The study also examined the impact of modern technologies, such as cryptocurrencies, on the shadow economy. Decentralised and anonymous means of exchange, such as Bitcoin and Ethereum, can be used for tax evasion and illegal transactions, making it difficult for tax authorities to trace such transactions.

The study data yields several key insights. Tax legislation should be streamlined, simplifying procedures and reducing burdens on SMEs. Building trust in state institutions requires enhanced accountability measures for civil servants to ensure sustainability. Technological innovations – electronic tax systems and big data analytics for financial transactions – can substantially improve tax administration transparency and efficiency. Effectively combating shadow economies demands a multifaceted approach incorporating tax, administrative, and technological measures alongside civil society engagement and international cooperation. One of the main limitations of this study is the focus on general trends in the shadow economy without delving into specific aspects of each country, which may limit the applicability of some recommendations in specific contexts. Further research should deepen the analysis of the influence of socio-cultural and institutional factors on the dynamics of the shadow economy in different regions of the world and develop more accurate models for forecasting and estimating the size of the shadow economy.

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# *The role of socially responsible marketing in increasing the competitiveness of transnational corporations in an unstable market environment*

by Tetiana Kniazieva<sup>\*</sup>, Lyudmila Orochovska<sup>\*\*</sup>, Oleksii Zhamoida<sup>\*\*\*</sup>, Anna Maryna<sup>\*\*\*\*</sup>, Oleksandr Chernyshov<sup>\*\*\*\*\*</sup>

## *Abstract*

The study analyzes the fundamentals of socially conscious marketing, which are essential to maintaining multinational companies' competitiveness. A series of recommendations for enhancing the efficacy of socially conscious marketing strategies in boosting multinational firms' competitiveness in an unpredictable market environment is the study's practical outcome. The theoretical result was the identification of the main patterns of using socially aware marketing techniques to increase the competitiveness of multinational corporations in an unpredictable market environment.

**Keywords:** competition; global market; transnational corporations; economic instability; sustainable development.

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## **Introduction**

A shift has occurred in the paradigm of viewing business as merely an instrument to satisfy the financial needs of its owners due to rapid and

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permanent changes in the global market's condition, strategic priorities in the context of transnational corporations' competitiveness, and methods and approaches to solving socially significant tasks for society. An elevated degree of corporate accountability is one of the essential requirements for the prosperity of contemporary corporation. It supports the idea of sustainable development by laying the groundwork for long-term contact with future customers and methods of attending to their specific requirements as well as the demands of society at large.

Most academics view marketing as a tool for implementing sustainable development by addressing social issues in addition to corporate objectives (Martin & Burpee, 2022). So, modification that corporate management must realize is that their social impact is constantly increasing, so they begin to bear a completely different responsibility for their actions. In the past, transnational corporations (TNCs) could only think about making money and increasing revenues, but the increased competition between them, due to economic instability in the global market, has set new challenges for their management, including supporting the sustainable development that was adopted by The European Commission as the foundation for the growth of the EU economy and society until 2030 (European Commission, 2024).

Kohut (2024) considers the impact of TNCs on the globalization of markets in the context of increasing competitiveness and social responsibility, and calls for regulating the activities of TNCs in the direction of ensuring social justice, sustainable development and protection of human rights. Imnadze (2023) also mentions environmental and ecological protection among the important principles of TNCs' activities.

Gurman & Komarnytskyi (2020) examined the characteristics of the national component in the corporate cultures of Germany, Japan, the US, and Ukraine in their study, which made it possible to highlight social responsibility as one of the components of the corporate principles of the Volkswagen Group. Under the direction of Ivanova (2023), a large team of scientists investigated social responsibility as a critical skill for guaranteeing the sustainable growth of businesses and determined the following social responsibility levels : personal (each employee and owners of the enterprise); enterprises (all processes and employees in general); public (a society consisting of all employees and customers); state (all state bodies and officials); global (all of humanity on the entire planet).

Rybina, Letunovska, and Kuzhior (2020) discovered that, in addition to conventional analytical techniques, the application of the concept of socially responsible marketing necessitates the use of the following multivariate techniques: SPACE, PEST, eTOM, QUEST, SNW, SWOT, and KPI analyses. Adomako et al. (2023) show a strong combined effect between

corporate policy and social responsibility. This effect allows enterprises to use the complementarity of resources to overcome challenges in global markets, increasing their competitiveness.

Carrera (2022) interprets corporate social responsibility as a means of creating trust between companies and territorial communities. The study found that for better and faster implementation of corporate social responsibility, it is necessary to regulate this process by the state and society, which makes the issue of private property rights relevant. The dynamics of rivalry between TNCs and their local rivals in emerging areas were examined by Al-Kwif et al. (2020). The marketing model required for the company's operations was identified as one of the main advantages that allows it to win in the competition.

Taking into account the results obtained in the considered works of scientists, it should be noted that they need to be updated due to constant changes in economic science and the introduction of the latest marketing models at enterprises. The paper aims to examine the problem of socially conscious marketing in light of increasing the competitiveness of TNCs in an unstable market environment. The other purpose is to provide their own recommendations on the use of socially responsible marketing tools to win the competition.

## **Materials and Methods**

Several of the following general scientific techniques were applied to the study's tasks: monitoring method – Information was gathered, organized, and analyzed using it on competition between TNCs and the global market situation; comparison method – useful for researching marketing models and comparing them; method of abstraction – employed to determine the primary concepts and categories throughout the investigation; methods of analysis and synthesis – applied to determine the most important components of the thing under study as well as its developmental stages and contributing variables; inductive method – is employed to forecast the anticipated efficacy of marketing that is socially conscious; abstract-logical and dialectical methods of scientific cognition, as well as the method of scientific abstraction – were employed in the investigation to develop theoretical generalizations, make the conceptual framework clear, and draw conclusions; the method of concretization – was employed to document the viability and efficacy of the suggested strategies for boosting the efficiency of socially conscious marketing techniques in the context of multinational firms' competitiveness in a volatile market.

The following categories of specialized techniques were applied to address specific tasks: methods of information collection; methods of information processing; methods of analytical work; method of justification. The following characteristics established the study's basic nature, as the study's findings might serve as the foundation for further basic or applied research and development; the study is thorough and has a wide theoretical foundation.

The significance of using socially conscious marketing strategies in both domestic and TNCs argues for the topic's relevance. They will work in Ukraine after the end of the war, at the stage of reconstruction, as this will allow establishing trusting and long-term relationships between local communities and the business environment. The process of examining how socially conscious marketing helps make multinational firms more competitive is the object of the chosen research. The concept of leveraging socially conscious marketing strategies to boost multinational firms' competitiveness in a volatile market is the subject.

## **Results**

The substance of the term “socially responsible marketing” and the primary means by which TNCs employ it must be ascertained. Socially responsible marketing is the practice of drawing clients in by endorsing reputable social issues and maintaining an ethical corporate structure. Using consumer information and interests, including values, beliefs, and personality attributes, TNCs develop social responsibility campaigns.

The following are only a few of the campaigns in which the company may become involved, contingent on the target audience's priorities: to protect children's interests: this campaign includes social resources and support for kids' activities, especially those related to sports, education, and creativity; to put healthcare ideas into practice: tailor marketing campaigns with medical themes; to put into effect sustainable practices: a well-recognized strategy that include lowering carbon emissions and fostering a robust environment; in favor of LGBTQ+: this social issue should inspire community involvement and serve as an example of diversity and inclusivity for liberal markets; food support: involvement in school lunch and breakfast programs and food bank projects shows a dedication to the community and health care; to assist with home acquisition and rental: this social method include funding nonprofits and companies linked to moral community housing projects (Indeed, 2024).

It is also necessary to determine the impact of values on the ability of TNCs to sell their products. According to a presentation titled “The Power of Value-Based Strategy,” by a research firm that advises corporate clients Forrester Research, “about 52% of U.S. consumers consider values in their purchase choices”, looking for brands that actively promote beliefs and values aligned with their own (Nail, 2017).

It is important to note that another priority in increasing the competitiveness of TNCs in conditions of economic instability is the digitalization of their services, which is already permanently taking place in the processes of interaction between Ukrainians and the authorities (Kniazieva et al., 2023). The importance that socially responsible marketing plays in business operations must be mentioned. Building solid customer relationships and ensuring sustainable business development need socially conscious marketing. It is this marketing's primary function, as Table 1 illustrates.

*Table 1 – The function of socially conscious marketing in business operations*

<b>No.</b>	<b>Role</b>	<b>Role Explanation</b>
1	Consumer Confidence Building	With increased awareness of data protection and privacy, customers are becoming more cautious about sharing personal information. Using responsible marketing practices, the company will strengthen the trust of its customers through transparency regarding data collection, use and security measures
2	Enhancing brand reputation	Applying ethical and sustainable marketing practices demonstrates to consumers and stakeholders that a brand prioritizes honesty and social responsibility. This improves the brand's reputation, makes it stand out from the competition, and attracts customers who value ethical business practices
3	Improving customer loyalty	Organizations that practice responsible marketing strive to create a more personalized and meaningful interaction with their target audience. It fosters an emotional connection with customers, stimulates brand loyalty, and encourages long-term relationships
4	Social responsibility	Businesses should consider the social impact of its products and services. This can be achieved by creating marketing campaigns that support social causes, raise awareness of important issues, or advocate for positive change
5	Supporting sustainable development	Brands may mitigate their carbon footprint and promote a more sustainable future by incorporating social and environmental factors into their marketing strategy. This not only benefits the environment, but also attracts a growing base of consumers who value sustainability

6	Long-term brand success	Building trust with consumers, strengthening brand perception, and cultivating strong customer connections are all ways that socially conscious marketing helps a business succeed over the long run. These factors ultimately lead to repeat purchases, positive information and customer recommendations, which increases revenue and ensures stable business growth
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Source: based on (Ebisan, 2024)

Table 1 allows for the derivation of many significant findings on the function of socially conscious marketing in business operations, as utilizing the idea of socially conscious marketing yields several advantages, but requires significant time and resources, which complicates its use for small companies; the function of socially responsible marketing might vary greatly between different business domains; given that customers reflect aspects of their worldview via their personalities, some functions of socially responsible marketing may depend on such characteristics; the business must implement all of the responsibilities of socially responsible marketing to create a team and a clear plan of activities in this direction.

Since the roles of socially responsible marketing are closely related to its values in the activities of the enterprise, it is necessary to disclose them, as in Fig. 1.

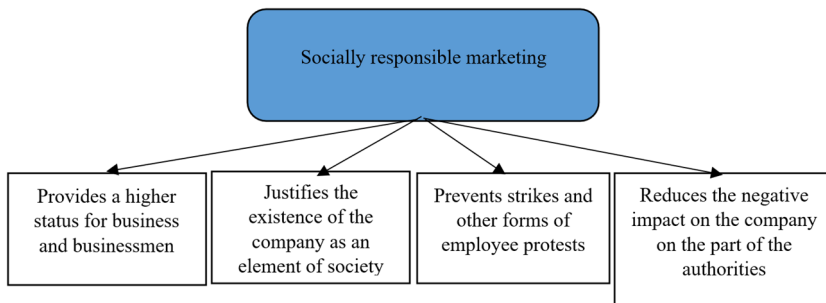


Figure 1 - The significance of socially conscious marketing in an organization's operations

Source: based on (Yevdokimova, 2019)

Analyzing the importance of ethically conscious marketing in the operations of an enterprise, it became clear that it is the high social activity of an enterprise that allows it to be protected from the actions of the authorities in developing countries. Because only public pressure forces the authorities of such countries to tolerate the work of companies in their territory. To enhance comprehension of the notion of socially conscious marketing, it is necessary to compare it with traditional (classical) marketing, as in Table 2.

*Table 2 – The primary distinctions between conventional and ethical marketing*

<b>No.</b>	<b>Factor</b>	<b>Traditional marketing</b>	<b>Socially responsible marketing</b>
<b>1</b>	Feedback period	Occurs slowly	Rapid response
<b>2</b>	Provision of information	Only the company's distributor provides information, and it is frequently faked.	Information is stored in the public domain in the form of non-financial or integrated reporting
<b>3</b>	Expenses	Are costly since every minute of each kind of media must be paid for (television advertising, newspapers and magazines)	Are smaller since social media marketing may use a multitude of online resources as well as diverse advertising and communication channels.
<b>4</b>	Competition level	It is difficult to compete with large companies	Any size business may compete with any major business for a client.
<b>5</b>	Ability to change	Advertising on TV and radio is not easy, and it is an expensive process	Easy and reasonably priced way to modify the message or add more details about the product

*Source:* based on (Gorokhova, 2021)

It should be highlighted while examining Table 2 that the use of the idea of socially responsible marketing in the operations of the enterprise allows to quickly receive information from consumers, reduce the cost of advertising and brand promotion and simplify the process of informing customers about the features of the product. All this has a positive effect on the competitiveness of an enterprise that can implement this marketing concept. In order to fully implement socially responsible marketing in the activities of TNCs in an unstable market environment, the company's management needs to know its principles, features, types, tools, main areas of implementation and consequences of implementation.

Socially responsible marketing can be described as a methodical planning and decision-making process founded on scenario analysis and goal setting, aimed at solving social problems, pertaining to the various ways that non-profit organizations from governmental, religious, and cultural contexts show themselves, and entailing the methodical creation of a marketing concept using a variety of marketing instruments (Goktas et al., 2019). It is also necessary to mention the specific principles of socially responsible marketing contained in the Table. 3.

*Table 3 – Principles of socially responsible marketing*

<b>No.</b>	<b>Principle name</b>	<b>Essence</b>
1	Responsibility to the environment	Use of environmentally friendly products and availability of environmentally friendly production
2	Social responsibility	The management of the enterprise must understand that it not only produces and sells goods, but also affects society with the help of this product
3	Responsibility for company employees	The management of the enterprise must be sure that employees perform work in accordance with their job responsibilities
4	Responsibility for the truthfulness of information	Every enterprise should understand that information is an influential factor in a person's life, so it is needed to speak, write and report only reliable information
5	Strategic responsibility	Each enterprise should have its own socially responsible marketing strategy from the very beginning of its implementation in order to save forces, time and resources

Building an effective strategy for socially responsible marketing of TNCs requires knowledge of its main types. Environmental social responsibility: obligations of TNCs to support sustainable development and environmentally friendly activities. The social responsibility of TNCs involves conducting their business in a manner that upholds human rights standards, including equitable treatment of all stakeholders, fair trade practices, and equality. The term "philanthropic corporate responsibility" describes a company's aims and aspirations to actively better society at large. Giving money from business profits to deserving local charities is a significant component of corporate philanthropy (typically in the form of a trust or foundation). Economic corporate responsibility is the process of basing financial choices on an ethical pledge.

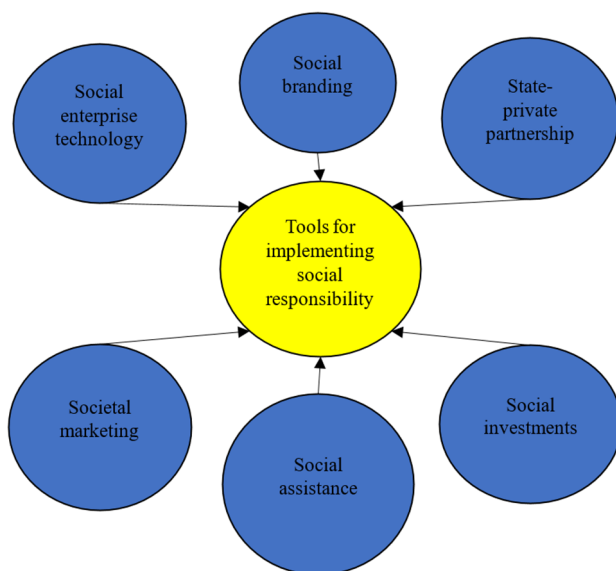
In order for TNCs to fully include socially responsible marketing into their operations, it is imperative that they ascertain the appropriate instruments. It was determined to depict them as shown in Figure 2.

According to Figure 2 it becomes clear that under modern market conditions, the tools of social responsibility of TNCs are becoming more creative and effective as they allow effective cooperation with the state, which leads to the implementation of unique joint projects; aid in providing support to populations' most vulnerable parts; promote the idea of sustainable development to ease social conflicts.

Considering the goal, tenets, instruments, and forms of socially conscious marketing in TNC operations, its content consists of manufacturing products in accordance with accepted standards and quality requirements; ensuring the safety of work and labor protection of TNC personnel; compliance with



universal and national business rules; creating new skilled jobs and providing employees with social guarantees; protection of the environment and flora and fauna; assistance in preserving the historical and cultural heritage of the country; support and funding of various social programs (Manaenko & Shevchenko, 2020).



*Figure 2 - Tools for realizing the social responsibility of TNCs*

TNCs use a variety of approaches to form and develop the concept of socially responsible marketing in their operations. These approaches include training top managers in economic-focused educational institutions, attending specialized courses and trainings on pertinent subjects, conducting in-depth research using written and visual materials, and combining multiple approaches.

## **Discussion**

While researchers both domestically and in Ukraine are increasingly interested in the topic of applying socially responsible marketing techniques to boost TNCs' competitiveness in an unstable market environment, none of the sources taken into consideration have been made available in such a comprehensive and volumetric manner. Additionally, there are no suggestions for improving the competitiveness of TNCs in an unstable

market by the application of socially responsible marketing techniques, which local businesses may employ in their international operations. It was proposed to conduct a content analysis. A component composition (words or phrases) was created, which is given in Table 4.

*Table 4 – The elements that make up the notion of “socially responsible marketing”*

No.	Component	Links to creators
1	Corporate marketing (K1)	(Ahluwalia, 2022; Gurman & Komarnytskyi, 2020; Belkin, 2022)
2	Sustainability (K2)	(Imnadze, 2023; Ivanova et al., 2023; Yevdokimova et al., 2019)
3	Social assistance (K3)	(Martin & Burpee, 2022; Manaenko & Shevchenko, 2020)
4	Environment (K4)	(Nitsenko, 2020; Reis & Molento, 2020)

Table 4 illustrates how the internal substance of the idea of “socially responsible marketing” varies greatly in terms of its component foundation. As a result, there isn't a single scientific method for distilling the core of the idea under investigation. The elements of the notion of “socially responsible marketing” that are frequently present in the writings of foreign and Ukrainian scientists were emphasized by the author. The next steps in the content analysis process are to count the mentions for each component and determine how many there are overall. Tables 5, 6, 7, and 8 display the respective ranks for the previously selected components based on how many times they were mentioned in the examined sample.

*Table 5 – The ratio of the number of mentions and the rank of the components of the concept of “corporate marketing”*

No.	Component rank	Number of mentions
1	(K1)	5
2	(K2)	3
3	(K3)	4
4	(K4)	2
<b>Total number of mentions: 14</b>		

*Table 6 – The proportion of mentions to the order of the elements that make up the idea of “sustainable development”*

No.	Component rank	Number of mentions
1	(K1)	2
2	(K2)	4
3	(K3)	2
4	(K4)	2
<b>Total number of mentions: 10</b>		

Table 7 – The proportion of references to component rankings for the idea of “social assistance”

No.	Component rank	Number of mentions
1	(K1)	1
2	(K2)	1
3	(K3)	3
4	(K4)	2
<b>Total number of mentions: 7</b>		

Table 8 – The relationship between the quantity and order of the elements that make up the idea of “environment”

No.	Component rank	Number of mentions
1	(K1)	2
2	(K2)	1
3	(K3)	2
4	(K4)	1
<b>Total number of mentions: 6</b>		

The final step of content analysis is interpretation of the findings with reference to the primary objective (definition of the concept), and this was accomplished by taking into consideration the data in Tables 4, 5, 6, and 7. The major components were chosen (based on frequency of mention) and the component composition of the concept under study was established (Fig. 3).

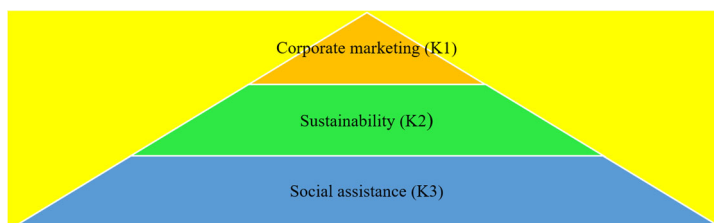


Figure 3 - Component composition of the concept of “socially responsible marketing”

The research suggests that the following actions may be taken to improve the efficacy of socially responsible marketing methods in increasing the competitiveness of TNCs in an unstable market environment: it is necessary to determine the skills of the company’s management; to research the requirements of possible clients; to perform initial estimates of the resources required to join a specific market; to study the peculiarities of the country's population: its beliefs, religion and culture; to determine the primary obstacles impeding the effective use of the socially conscious marketing idea; to attract competent specialists to teach the basics of socially conscious marketing to the company's upper management; to actively use events that

can popularize the company's activities: helping the poor, supporting vulnerable groups, and protecting the environment.

Only active practice in situations that are almost real may assist the business manager in putting the concepts of socially responsible marketing into effect. TNC owners should appoint many managers to teams with a wealth of knowledge, so that additional experts may serve as mentors and elucidate their methods to novices. In the absence of the necessary resources and time, it can be used the game format for practical training in the principles of socially responsible marketing. It will consist of the formation of groups of managers and the subsequent distribution of roles in an arbitrary manner. Next, members of different groups will choose a card with tasks and determine what problems and difficulties their implementation carries. This will allow them to identify the skills they need and situations where the use of socially responsible marketing tools is appropriate. The recommendations provided will help managers and domestic companies understand the importance of ethically conscious advertising and master its basics, which will play a positive role in competing in the global market in conditions of economic instability.

## **Conclusion**

The research assesses the value of socially responsible marketing for TNCs' operations and examines how it may be applied to boost their competitiveness in a volatile market. The primary functions of socially conscious marketing in business operations are identified and explained, namely: strengthening consumer confidence, increasing brand reputation, increasing customer loyalty, social responsibility, supporting sustainable development, long-term brand success.

It is determined that building an effective strategy for socially responsible marketing of TNCs requires knowledge of its main types, since they are the hint for the manager in his next activities within the paradigm of sustainable development. The methods of training managers in the use of socially responsible marketing tools in an unstable market environment are also clarified. Examples of how the use of socially conscious marketing strategies by firms correlates with their performance can be included in future study on the chosen issue.

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# *Regulatory and legal support of the positive reputation of state bodies: On the example of the legislation of the Republic of Kazakhstan*

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## *Abstract*

This scientific article identifies differences from similar concepts of reputation, to reveal the capabilities of state bodies with the right approach to the formation of their reputation. The research is based on the analysis of institutional and theoretical understandings of the reputation of state organizations, as well as on conducting an expert survey among employees of the Central Office of the Agency for Civil Service Affairs of the RK. The authors have proposed recommendations on amendments and additions to some regulatory legal acts in order to clarify the understanding of the reputation of public administration bodies, and as a result, increase their reputation, as well as attract the attention of public managers to issues of reputation management, which are becoming more relevant.

*Keywords:* reputation, legislation, public administration, open state, civil servant, trust.

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## Introduction

Over the past decades, there has been increasing evidence that organizations of public sector recognize the importance of a favorable reputation and treat reputation as a matter of strategic importance (Carpenter and Krause, 2012; Maor, 2015). Reputation consists of symbolic understanding of organization – its capabilities, goals, history, tasks – and these images are embedded in the thinking of many stakeholders (service recipients, mass media, political experts and ordinary citizens) (Carpenter, 2010).

Stakeholders do not see a real organization, but rather a partial understanding of the effectiveness of the organization (Carpenter and Krause, 2012). This ambiguity gives state organizations some freedom of actions for strategic participation in the formation of their own reputation.

Reputation is an objectively formed set of opinions about the organization of representatives of interested parties, one way or another connected with this company. Reputation in practice looks like the “good name” of the organization; it is formed under the influence of a large number of factors and is evaluated by various factors.

Reputation is an interdisciplinary concept that includes knowledge from the fields of marketing, social psychology, economics and the science about decision-making. Based on the analysis of the reviewed scientific literature, one of the key indicators of the effectiveness of the state apparatus is its reputation, however, to date, the concept of the development of the reputation of the state apparatus, as well as the concept of this term, has not been given enough attention in the context of public administration.

A widely used definition of reputation in management and marketing is “the general assessment in which a company is evaluated by its constituent parts” (Fombrun, 1996). It follows from this that management of reputation implies the management of those components that form the reputation of the organization (Elsbach, 2006).

At the same time, in our opinion, the research of the reputation of the state apparatus will not be complete without studying the opinion of the civil servants themselves regarding the understanding of the nature of the definition of "reputation". For this purpose, we conducted a survey, during which we obtained the data reflected in the diagrams below.

As follows from Figure 1, civil servants, by the majority of their opinions (33.3%), take the professionalism and efficiency of the state apparatus for reputation. 29.3% of civil servants define reputation, as is customary in management, for the collective perception of the internal and external audience of the activities of state bodies. 24% associate reputation with trust



in the state apparatus. In general, 86.6% realize that the reputation of the state body consists of the collective opinion of the population about the past and current activities of the state body, trust in the state body and professionalism and efficiency of the state apparatus. 10% of respondents identify reputation with image, and only 2.6% associate reputation with openness and interaction with government stakeholders.

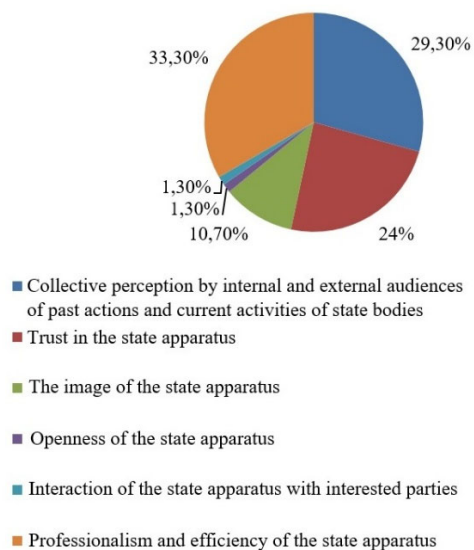


Figure 1. Answers to the question about what civil servants understand by the term "reputation of the state apparatus"

Unlike in the past, when reputation was an abstract concept, anchored in collective thinking, today it is becoming a real "visiting card". Considering that nowadays information is especially easily accessible to everyone.

Many states and public figures are concerned about citizens' dissatisfaction with public sector services and the image of the state apparatus as a whole (Van De Walle, 2007). In this regard, the formation of the effective, accountable and "listening" government can help improve the perception of the state apparatus by the general public and strengthen their trust (Van de Walle, 2011).

Despite the fact that many works in the field of organization of public administration have successfully revealed the results of a larger number of management ideas, introduced into the public sector, such as performance management, contracting and management, reputation is not given due attention. Due to the practical importance of reputation for government

organizations and the broad scopes of strategies on reputation management, the search for solutions to this problem is very justified (Arild Waeraas and Haldor Byrkjeflot, 2012).

In most cases, textbooks and manuals take Commercial organizations on reputation management as a basis. Despite the stated universality of strategies of the management of reputation, that it can be applied to any organization, regardless of sector, size and main task, the foundation of such strategies is usually a “corporation”, “firm” or “company” (Arild Waeraas and Haldor Byrkjeflot, 2012).

In this article, the authors argue that understanding how the reputation of the organization is formed, developed and strengthened, and it has fundamental value to understanding the importance of public administration in the conditions of the modern democracy.

Understanding the importance of all methods of forming the reputation of the state apparatus, the article highlights regulatory issues, taking into account the importance of this aspect in solving the identified problem.

To date, the Republic of Kazakhstan has established a sufficient legal framework in the field of public service aimed at building a positive reputation of a civil servant.

At the same time, in some cases, the existence of laws themselves is not enough to solve this problem. Based on the analysis of the regulatory framework in this area, the shortcomings that occur in the current legislation are highlighted.

In order to form a positive reputation of a civil servant associated with selfless service to the Motherland, it is necessary to form legislation that would be able not only to educate a civil servant in the spirit of patriotism, but also to strengthen and enhance the reputation of the state apparatus.

## **Literature review**

Researches on organizational reputation appeared in the early 1990s, and it was several years before the term appeared in the literature on public administration. Researches of corporate reputation has mainly focused on the financial performance of firms (Ryan, 2007). For example, management of corporate reputation can lead to various benefits, such as increased profitability or reduced costs (Fombrun, 1996).

Over the past decades, scientists from various fields have identified the importance of the impact of reputation on the public sector, thereby this area of research is increasingly attracting the attention of scientists (Overman et al., 2020). Reputation helps in explaining the actions of state organizations

as a reaction to threats and possibilities (Maor, 2015; Rimkutė, 2018). In addition, reputation is an intangible asset that plays a crucial role in state organizations (Carpenter, 2001; Carpenter, 2010; Carpenter and Krause, 2012).

Baekkeskov (2017) notes that reputation is necessary to create and maintain trust, and Carpenter (2010) points out that prestige and status are advantages associated with reputation.

Thus, according to the results of an expert survey, held by the authors, Figure 2 reflects the opinion of civil servants (74.6%) who fully or partially agree that the population perceives the reputation of state bodies as more positive than negative.

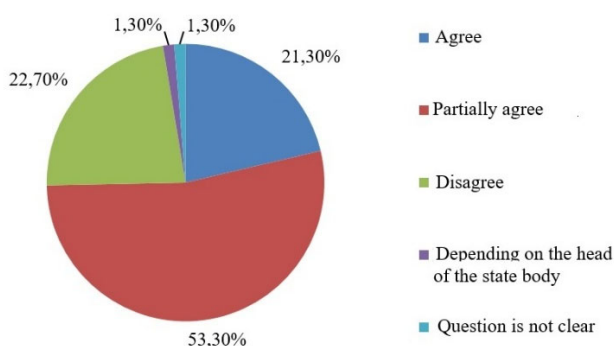


Figure 2. Distribution of survey participants' responses regarding the degree of their agreement with the statement that "in the eyes of the population, the reputation of state bodies is primarily positive, since state bodies are authorized to perform the functions of public administration and act on behalf of the state"

Finally, Sataøen and Wæraas (2015) argue that branding helps build reputation. These intangible assets have become strategic for the viability and effectiveness of state organizations, as they improve the delivery of public services (Carmeli and Tishler, 2004; Luoma-aho, 2007).

As Farnsworth (2003) notes, the public image of the government is surrounded by a "pessimistic fog of distrust, cynicism and contempt". Bureaucracy, which is increasingly characterized by all state bodies today, is so often used as a negative term that it overrides the meaning, which it was originally supposed to embody, such as progress, rationality and efficiency (Byrkjeflot and du Gay, 2012; Olsen, 2005).

The key question for practitioners involved in this topic is: how do government organizations build relationships with certain stakeholders to achieve a good reputation? In order to answer this question, public sector

managers focused on management of reputation as a matter of strategic importance (Wæraas and Byrkjeflot, 2012; Wæraas and Maor, 2015).

Stevens, Vidar, Erik-Hans Klijn, and Rianne Warsen (2021) in their work focus on how target groups react to strategies of public branding, moving from primarily internal researches of organizational influence to analysis of public influence. Their work responds to one of the main conclusions of Perez (2021) that researches of reputation and branding should also focus on the perception of service recipients.

Based on this, during our survey, respondents were asked a question, whether the state body can have a different reputation among different groups of the population. Almost all respondents (98.6%) fully or partially agree that different segments of the population perceive the activities of the state body differently, and, accordingly, perceive the reputation of the state body differently (Figure 3).

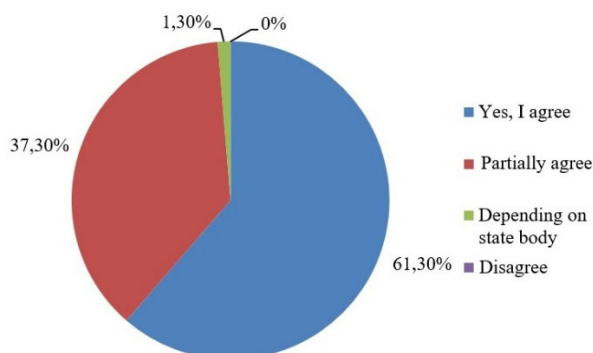


Figure 3. Opinions of respondents on the question of whether the state body can have a different reputation among different groups of the population

## Methods

The research presents institutional and theoretical understandings of the reputation of state organizations.

The research purpose consists of the scientific justification of a set of theoretical conclusions regarding the understanding of the reputation of state organizations and the differentiation of concepts close to the concept of “reputation” in order to more accurately and deeply understand this term and to identify the expected possibilities for the public sector with the right approach to the formation of their own reputation. Along with this, it is

necessary to develop recommendations for improving legislation in the field of reputation formation of public administration bodies.

The following main tasks were set in order to achieve the above purpose:

- 1) To conduct a literary review;
- 2) Study of issues related to the disclosure of the concept and content of the reputation of the public sector;
- 3) Setting a range of issues related to the concept, purposes and function of the reputation of state organizations;
- 4) Substantiation of the theoretical foundations of concepts close to the definition of “reputation”;
- 5) To conduct a sociological survey among civil servants of the central office of the Agency for Civil Service Affairs in order to clarify their perception of the reputation of the state apparatus;
- 6) To analyze the regulatory framework of the Republic of Kazakhstan in the field of formation of the reputation of the state apparatus;
- 7) To make recommendations on improving legislation in the context of improving the reputation of public administration bodies.

The methodological basis of the research was made up of general scientific methods of cognition, involving the consideration of phenomena in their constant development, interrelation and interdependence. In the process of the research, private-scientific methods of comparative and systematic analysis were used comprehensively.

The theoretical basis of the reputation of state bodies was formed as a result of the systematic conducting the theoretical and empirical researches in the field of the public sector. In addition, the introduction of the concept of reputation is used not only for the production of scientific knowledge, but also in the practice of public administration.

In the course of writing the article, the authors relied on the generally accepted fundamental research of the general theory of the formation of reputation not only of state organizations, but also of the private sector.

The research covered the works of scientific researchers over the past decade in the field of formation of reputation.

The following research methods were used in order to achieve the set purposes:

1. The literature review was conducted using a systematic review, which made it possible to determine the body of knowledge about reputation over the past two decades and establish how the scientific community views reputation. The choice of conducting the systematic review is mainly because this type of research helps to present the current body of knowledge in a more transparent and reproducible way.

2. The quantitative research method was applied in the form of a sociological survey conducted among civil servants of the central office of the Agency of the Republic of Kazakhstan for Civil Service Affairs. 76 employees from a total staff of 92 people took part in the survey. The sociological survey was conducted by creating a survey form in the Google Forms application and sending the questionnaire via messengers.
3. The qualitative part of this research allows us to deepen our understanding of the concept of "reputation of the state apparatus" and reveal the capabilities of public administration bodies with a serious approach to the formation of their reputation.
4. The theoretical basis on the issues of reputation of public authorities was formed as a result of systematic theoretical and empirical research in the field of public administration. In addition, the introduction of the concept of reputation is used not only for the production of scientific knowledge, but also in the practice of public administration.
5. Analysis of the regulatory framework, on the basis of which suggestions were formulated to improve legislation within the framework of the topic being researched.
6. Using the method of comparative analysis of concepts close to the concept of reputation, the authors had the possibility to demonstrate the differences in the definitions of goodwill, brand, publicity, image, reputation and to identify differences in the ways of their formation.

Thus, in this article, the authors used three search strategies. Firstly, the bibliographic databases of Web of Science and Scopus were studied for access to scientific publications related to the object of research in all studied disciplines. Secondly, a search of entries was made in some of the journals considered to be among the best known in the field of public administration studies. Finally, a request was made to Google Books.

Firstly, the thematic analysis of the articles confirms the significance of the reputational problems identified in the qualitative analysis. Secondly, descriptive statistics made it possible to identify the possibilities of state bodies that open up to them with proper management.

Thus, the research plan includes a lot of data to understand the diversity of points of view and understanding that, over time, give importance to the reputation of state bodies.

## **Results and discussions**

The procedure for forming a reputation is complex and ambiguous, in which the slightest wrong action or lack of proper participation in its

components can instantly destroy the reputation built up over many years and lead to significant negative consequences for the organization's activities in the future. The lack of effective management of this process can lead to risks or missed possibilities for the public sector. Managers in the public sector should be ready to a lightning-fast response to the developments taking place, in order to preserve the good reputation of state bodies.

The need of the formation of public administration, oriented on the reputation, consist of not the need of creation of a universal approach, but that scientists and practitioners study the factors of reputation formation that will be applicable to any public institution and its managers.

Changes, taking place in the public sector environment, and emerging new communication models have an impact on the activities of state bodies, which must understand how to properly learn how to manage these changes. Along with this, new tools are emerging that can assist public administration in managing these changes. As an example, we can cite methods of reputation management, thanks to which it is possible to increase the awareness of state bodies about the opinion of users of social networks and help them analyze the essence of changes and the formation of opinions of certain groups.

For forecasting and analyzing opinions, such a concept as benchmarking is widely used, which helps the organization's management to be fully prepared for current and emerging competitive issues. It promotes the study of the potential of the market, the growth of awareness of employees who are responsible for decision-making. If we take into account that in rapidly changing and developing industries, information is in a chaotic order, then the demand for a clearly formulated marketing strategy, based on serious research, increases dramatically.

Benchmarking is a vital element in the search and development of suitable strategies and their implementation. In today's new, constantly updated economic environment, the role of the benchmarking strategy is to help understand what actions need to be taken from the point of view of the internal structure of the company.

There are various interpretations of reputation in the scientific literature on economics, management and sociology, and along with the definition of "reputation", you can find concepts similar in meaning: goodwill, brand, publicity, image and others. In this regard, we consider it appropriate in this article to present the differentiation of these concepts.

*Table 1 - Comparison of the concept of reputation, image, publicity, brand, goodwill*

<b>Definition</b>	<b>Reputation</b>	<b>Image</b>	<b>Publicity</b>	<b>Brand</b>	<b>Goodwill</b>
<b>Meaning</b>	A collective understanding of the past activity and results of activity of organization, describing the firm's ability to provide valuable results to multiple stakeholders	A superficial understanding of the organization. The impression that the organization evokes.	Positive fame on a large scale and recognition of the organization, its employees and activities	Complex of clear ideas about the goods or services of organization, the value of which depends on the needs of stakeholders (logo, trademark)	Evaluation of all intangible qualities of organizations that are direct components of their success and formed within the organization during its activities
<b>Methods of formation</b>	Deserved opinion of the public about the organization, formed throughout the entire activity of the organization	Purposefully formed opinion in the eyes of the public by promoting the organization	Artificially generated fame through the mass media	It is purposefully formed by the will of the organization through the mass media	Well-deserved assessment of the organization based on the results of many years of activity

In literature, the term “business reputation” is often replaced by the definition of goodwill. In the professional sphere, the following definitions of goodwill are used: “assets, capital of a firm that cannot be materially measured, for example, reputation, technical competence, communications, marketing techniques, influence, etc.” (Raisberg et al., 1999). According to the definition, given in Appendix A to IFRS 3, goodwill is the future economic benefits arising due to assets that cannot be individually identified and separately recognized. Based on this, most experts in the field of accounting and evaluation of intellectual property come to the conclusion that the concept of goodwill is defined as a well-deserved assessment of all intangible qualities of organizations that are direct components of their success and formed within the organization during its activities (Table I).



One of the concepts that is widely used to characterize the image of an organization is the concept of a brand. According to K. Bove and W. Arens, authors of the first encyclopedia of marketing and advertising, a brand is a set of values, that is, a set of various benefits, attributes or qualities satisfying the buyer, the value of which depends on the specific desires and needs of stakeholders (Table I). Therefore, a brand is understood as a set of values designed to satisfy functional, social, psychological, economic and other needs of the consumer” (Sharkov, 2010). The brand appears at the will of the goods producer and it is created consciously and purposefully (Table I), it is designed for unilateral impact with the help of advertising and marketing technologies.

Publicity (English – publicity, openness) is a concept widely used in the framework of the formation of an organization’s reputation, implying positive fame on a large scale and recognition of the organization, its employees and activities, arises as a result of the organization's work with the mass media (Table I). Some experts find similarities in the concepts of “image” and “publicity”. Publicity is understood as one of the areas of PR activity, which is aimed at creating awareness and location to the organization, services, products or personality (Sharkov, 2010). However, publicity, to a greater extent, is external fame for the general public and to a greater extent is a component of the image (Dauling, 2006). Publicity provides organizations with numerous opportunities of forming the awareness about their activities or the produced goods and services in the eyes of stakeholders (Sharkov, 2010).

Image identifies “what comes to mind when a person hears the name or sees the logo” (Gray and Balmer, 1998) of the particular organization. The image can be formed through advertising and promotion in the mass media, but not controlled by the organization (Table I, Table II), since such factors as coverage in mass media, government regulation and other external factors also affect the perception of the organization. Each individual can have his own unique point of view on the image of the organization (Table II). Figuratively speaking, the image is a superficial understanding of the organization and has a subjective, short-term character (Table I, Table II). The image of organizations is very susceptible to possible crises and can fluctuate depending on ongoing external and internal changes (Table II). In any case, the image is necessary for any organization, as an addition to the established reputation.

Reputation implies a collective ingrained notion in the minds of stakeholders about the past activities and results of the organization, describing the ability of the firm to provide valuable results (Table I, Table II). According to the researches of American sociologists J. Landberg, K.

Schreg, O. Larsen, reputation is one of the most valuable assets for both an individual and an organization as a whole (Shkolin, 2004). The reputation of an organization arises and develops without any desire of its owner and is the result of a two-way relationship between the organization and the target audience (Tul'chinskij, 2018), (Table I). Reputation fills the internal component of the organization and reflects the assessment of the organization by society, thus, it is considered that reputation is quite resistant to crisis situations (Table II).

At the same time, the concepts of “image of the organization” and “reputation of the organization” are interrelated, but they are not identical. The reputation of an organization depends on the formation of its image, but the difference is manifested in the degree of influence of the organization on the result. The creation of the image is due to the targeted efforts of the organization itself, and the reputation is formed as a reaction of the target audience to which the organization's activities are directed (Sharkov, 2010) (Table II).

*Table II - The main differences between the concept of image and reputation*

<b>A sign of difference</b>	<b>Image</b>	<b>Reputation</b>
Assessment	Subjective assessment, personal opinion of each individual	Assessment of a group of stakeholders or a society based on the organization's past results in various fields of activity
Mass media influence	The image of the organization can be changed through advertising, publications in the mass media and social networks	Advertising and promotion in the mass media do not have a significant impact on the reputation of the organization
Types of perception	Each individual can have his own unique understanding of the image of the organization	Reputation is the average value of stakeholders' opinions about the organization
Period of exposure	The short-term image of the organization in the minds of stakeholders	The ingrained image that has been formed by the stakeholders of the organization since its existence
Stability	Fluctuates The perception of the image may fluctuate in crisis situations, the image of the organization is not stable and may collapse in an instant	Stable A strong reputation does not undermine the trust of stakeholders in the organization in crisis situations

All of the above definitions are an auxiliary link in the formation of the reputation of organization, they can be formed independently of each other, and affect the formation of an organization's intangible asset. Based on the above, it can be concluded that the concept of "reputation" and "image" are considered broader concepts and have more tasks in the development of the organization. In addition, it should be noted that the formation of the reputation of organization is considered impossible without the formation of a positive image, brand and publicity.

A good image and a recognizable brand are an integral part of the corporate reputation of the organization, and all together this constitutes an intangible asset of the organization. Reputation, brand, image, goodwill and publicity are directions of communication influence that are in close interaction with each other, and have a direct and indirect impact on each other.

While corporations manage their reputation to achieve maximum profitability, state organizations need to attract a variety of economic, political and social audiences to meet the public interest (Wæraas, 2020).

Working on reputation among many stakeholders in different ways is an important job in which achieving absolute success is not possible. Nevertheless, state managers at all levels of the organization spend most of their time, trying to build a reputation, which will allow them to gain independence in decision-making (Carpenter, 2001). Daniel Carpenter, in his fundamental work on this topic, "The formation of bureaucratic autonomy", revealed that the independence of some American organizations was due to their ability to separate the tasks assigned to them, which allowed them to look in a positive light in front of many stakeholders. As a result, the established reputation gave them the possibility to remain independent, despite the pressure of the political sphere.

Reputation is a systematic process, which ideally aims at acquiring "a good name" by the organization through its self-improvement. A complex of measures, taken to achieve a reputational "ideal" in the organization, acts as a basis for informing the audience about the positive qualities, achievements and capabilities of the organization, forming a positive public opinion.

At the same time, many organizations of state sector are implementing the strategies of the reputation building, such as image and brand events. Recent studies show how institutions of various types and levels in a number of OECD countries, such as ministries and central state bodies (Luoma-Aho, 2007; Maor, 2007; Maor, 2010; Carpenter, 2010), local governments (Ryan, 2007; Salomonsen, 2008), educational institutions (Chapleo, 2004; Gustafsson and Porsfelt, 2009; Wæraas and Solbakk, 2009) and the Offices of Public Health (Arnold et al., 2003) recognized the potential benefits of

good reputation. A strong reputation not only serves as a competitive advantage, increasing sales, profits, increasing productivity (Rhee and Valdez, 2009), increasing the level of trust for state organizations, it is also “valuable political capital – which can be used to gain support, to achieve independence in decision-making and freedom of actions of politicians, to recruit and retain valuable personnel (Carpenter, 2002).

The legacy of Soviet administrative practice is clearly visible in the public administration system of Kazakhstan, in particular in slow and highly formalized bureaucratic procedures (Ayubayeva et al., 2022; OECD, 2017). At the same time, the basis of integration of the Kazakh society into the world community should be public service, the main principles of which should be democratism and legitimacy as well as professionalism, competence, initiative, honesty and commitment (Ospanova et al., 2019). Over the past 10 years, the Republic of Kazakhstan has created a sufficient legal framework in the field of public service, aimed, among other things, at building a positive reputation of the state apparatus. Thus, we have identified three key regulatory legal acts that, in our opinion, need to be finalized within the framework of the topic of our research: The Law of the Republic of Kazakhstan “On Combating Corruption” dated November 18, 2015 (The Law on Combatting Corruption, 2015); Decree of the President of the Republic of Kazakhstan dated December 29, 2015 No.153 “On measures to further improve ethical standards and rules of conduct for civil servants of the Republic of Kazakhstan” (Decree, 2015); Law of the Republic of Kazakhstan “On the Civil Service of the Republic of Kazakhstan” dated November 23, 2015 (The Law on the Civil Service of the Republic of Kazakhstan, 2015).

To date, the Law of the Republic of Kazakhstan “On Combating Corruption” (The Law on Combatting Corruption, 2015), in article 6 “System of anti-corruption measures” contains the main anti-corruption measures, as which provides for the need for: anti-corruption monitoring; analysis of corruption risks; formation of the anti-corruption culture, etc.

We believe that in article 6 of the Law, the legislator did not fully outline measures to combat corruption. In particular, the main focus of both the fight against corruption and improving the reputation of the state apparatus (and we consider these processes inseparably from each other) is ethical support, that is, the application of the principles of ethics in the state apparatus. Unfortunately, article 6 of the above-mentioned regulatory legal act does not say anything about the ethical aspects of combating corruption (Table III).

Thus, paragraph three of article 6 deals with the formation of an anti-corruption culture. However, there are some ambiguities in article 9 of the Law of the Republic of Kazakhstan “On Combating Corruption”. Moreover,

the above-mentioned law does not contain the concept of “anti-corruption culture” (Table III), the law also considers only the possibility of forming an anti-corruption culture in society by strengthening values aimed at instilling intolerance to corruption. Thus, the Law of the Republic of Kazakhstan “On Combating Corruption” of 2015 has a big drawback – it is the lack of a mechanism for implementing the above-mentioned regulatory legal act (Ayubayeva et al., 2021).

Taking into account that, according to Transparency international, in the recent past, the Republic of Kazakhstan was ranked 140<sup>th</sup> out of 180 countries as one of the most corrupt countries in the world, and today ranks 93<sup>rd</sup> in the list of the least corrupt countries in the world, of course, this is a great achievement for our state. At the same time, it should be noted that Kazakhstan has strengthened its position in the ranking since the adoption of the new law “On Combating Corruption”, when the country was ranked 123 on the corruption perception index (Transparency international, 2024).

The next stage in improving the legislation of the Republic of Kazakhstan in the field of promoting and maintaining a positive image and reputation is the addition of the Decree “On measures to further improve ethical standards and rules of conduct for civil servants of the Republic of Kazakhstan”, the Code of Ethics for Civil Servants (Decree, 2015). Thus, paragraph 1 of the Code of Ethics of Civil Servants of the Republic of Kazakhstan, “General Provisions”, is proposed to be supplemented by the obligation of civil servants in their activities to preserve and strengthen the image and reputation of the civil service, the state and its institutions (Table III). In terms of the attractiveness of the public sector, its image and reputation play an important role. Regarding the concept of “unattractive image”, which is considered to have a public service in the United States, encourages many talented students to pursue a career in the private sector (OECD, 2007), while a similar situation is currently observed in Kazakhstan.

Subparagraph 5 of paragraph 6 of this document “on the requirements for civil servants”, we suggest to state as follows: “to observe business etiquette and rules of official conduct, to maintain and strengthen the image and reputation of state bodies, to prevent the commission of actions that clearly undermine the dignity and authority of the state bodies in the eyes of citizens, of which they are representatives” (Table III). The need to introduce these innovations is also confirmed by the “Strategy to increase the competitiveness of the state apparatus of some OECD member countries” (2000) (New Zealand, Norway, Sweden), which states the need for public authorities to monitor, enhance and maintain the image and reputation of the institution of public authorities (OECD, 2001).

The Presidential Decree “On measures to further improve ethical standards and rules of conduct for civil servants of the Republic of Kazakhstan”, 2015 also contains a Provision on the Ethics Commissioner. So, in Chapter 2 of the Provision on the Ethics Commissioner, “The main functions of the ethics commissioner”, paragraph 4, subparagraph 9 we suggest to add the next: “in order to prevent violations of the legislation of the Republic of Kazakhstan in the areas of public service, anti-corruption and the Code of Ethics, as well as the formation of the positive image and reputation of the civil service, the Ethics Commissioner interacts with civil society institutions and state bodies”.

In Chapter 2 “To perform the assigned functions, the Ethics Commissioner”, paragraph 5 of subparagraph 3, we propose to supplement as follows: “he makes the suggestion to the head of the state body to encourage persons who have made a significant contribution to the formation of a positive image and reputation of the state body and a positive climate in the team”.

Speaking about the Law “On the Civil Service of the Republic of Kazakhstan” (The Law on the Civil Service of the Republic of Kazakhstan. 2015), in article 1 of this Law it is recommended to set out the definition of the concept of “reputation” (Table III). Based on the totality of interpretations of this definition, “reputation” is defined as an assessment and public opinion about an individual or organization based on their past and current actions and characteristics. Thus, civil servants will have a clear vision and understanding of the qualities and values necessary for the formation of a stable positive reputation, both of the state apparatus and themselves.

In this Law, Article 6 “Basic principles of public service” is recommended to set out the “Basic principles and values of public service”, to supplement it with paragraph 2 “Basic values of public service”. In this paragraph, it is recommended to outline the basic values of the civil service of the Republic of Kazakhstan: integrity, honesty and accountability, impartiality, improvement in their activities, serving for the benefit of the people, based on the experience of countries such as Singapore and the United Kingdom.

Touching upon the rights and duties of civil servants, which are defined by the Law “On Civil Service”, it is recommended to supplement Article 10 of the above-mentioned Law – “Basic duties of civil servants” with the paragraph “strengthen and enhance the reputation of the civil service” (Table III). As S. Kaparov notes, based on the data of a World Bank study, strengthening the image of the civil service is one of the motivations for public service reforms in most countries (Kaparov, 2010). In general,

according to the Hungarian experience, one of the main duties of civil servants is to preserve the image (reputation) of the civil service (Sigma Papers, 1997).

In the Law “On the judicial system and the status of judges of the Republic of Kazakhstan”, in Article 29 “requirements for candidates for judges”, subparagraph 2 of paragraph 1 states that a person “with higher legal education, high moral qualities, impeccable reputation and work experience in the legal profession for at least five years can be appointed as a judge”. Also, paragraph 1 of article 35 of this Law mentions the need for an impeccable reputation for the retirement of judges (termination of the powers of a judge in the form of honorable retirement from office) (The Constitutional Law of the Republic of Kazakhstan, 2000). We consider it advisable to apply the requirement of impeccable reputation not only for candidates for judges of the Republic of Kazakhstan, but also for political civil servants.

Thus, article 14 “Admission to political public service” should be supplemented with paragraph 5: “The occupation of a political public position is subject to the availability of an impeccable reputation, as well as the moral character of the candidate, formed on the basis of his previous official and off-duty activities” (Table III).

All of the above, at the same time, will contribute to the specification of regulatory documents. As stated in the article by Y.B. Abdrassulov (Abdrassulov et al., 2023) in law enforcement, concretization leads to an increase in the effectiveness of legal regulation.

*Table III - Suggestions for amendments and additions to regulatory legal acts*

Regulatory legal act	Current edition	Suggested edition
The Law “On Combating Corruption”, 2015	Article 6 “System of anti-corruption measures”  Article 9 “Formation of an anti-corruption culture”	Article 6 “The system of anti-corruption measures” should be supplemented with a paragraph - the application of the principles of ethics in the state apparatus.  Article 9 “Formation of an anti-corruption culture” should be supplemented with an explanation of the concept of “anti-corruption culture”.

“On measures to further improve the ethical norms and rules of conduct of civil servants of the Republic of Kazakhstan”, Code of Ethics of Civil Servants of the Republic of Kazakhstan, 2015

“On measures for further improvement of ethical norms and rules of conduct of public servants of the Republic of Kazakhstan”, Regulation on the Ethics Commissioner, 2015

Paragraph 1, Chapter 1 “General provisions”, Civil servants in their activities should be committed to public policy and consistently implement it, strive to preserve and strengthen public confidence in the civil service, the state and its institutions.

Paragraph 6, subparagraph 5 of Chapter 3 “The following requirements are imposed on civil servants”:

5) to observe business etiquette and rules of official conduct, to prevent the commission of actions that clearly undermine the dignity and authority of state bodies in the eyes of citizens, of which they are representatives

Chapter 2 “The main functions of the Ethics Commissioner”, paragraph 4, subparagraph 9 - in order to prevent and prevent violations of the legislation of the Republic of Kazakhstan in the areas of public service, anti-corruption and the Code of Ethics, as well as the formation of a positive image of the civil service, interacts with civil society institutions and state bodies

Chapter 2 “To perform the assigned functions, the Ethics Commissioner”: paragraph 5, subparagraph 3 - makes a suggestion to the head of the state body to encourage persons who have made a significant contribution to the formation of a positive image of the state body and a positive climate in the team

Paragraph 1 “General provisions”, Civil servants in their activities should be committed to public policy and consistently implement it, strive to preserve and strengthen the trust of society, the *image and reputation* of the civil service, the state and its institutions

Paragraph 6, subparagraph 5 of Chapter 3 “The following requirements are imposed on civil servants”:

5) to observe business etiquette and rules of official conduct, *to support and strengthen the image and reputation of state bodies*, and prevent actions that clearly undermine the dignity and authority of the state bodies they represent in the eyes of citizens.

Chapter 2 “The main functions of the Ethics Commissioner”, paragraph 4, subparagraph 9 should be supplemented - in order to prevent and prevent violations of the legislation of the Republic of Kazakhstan in the areas of public service, anti-corruption and the Code of Ethics, as well as the formation of a positive image and *reputation* of the civil service, interacts with civil society institutions and state bodies

Chapter 2 “To perform the assigned functions, the Ethics Commissioner”: add paragraph 5, subparagraph 3 - makes a suggestion to the head of the state body to encourage persons who have made a significant contribution to the formation of a positive image and *reputation* of the state body and a positive climate in the team



The Law “On Public Service of the Republic of Kazakhstan”, 2015	Article 1 “Basic concepts used in this Law”	Article 1 “The basic concepts used in this Law” should be supplemented with the definition of the concept of “reputation”.
	Article 6 “Basic principles of public service”	Article 6 “Basic principles and values of public service” Paragraph 2 Public service in the Republic of Kazakhstan is based on the following values:
	Article 10 “Basic duties of civil servants”	Integrity, honesty and accountability, impartiality, improvement in their activities, serving for the benefit of the people Article 10 “Basic duties of civil servants” - add the paragraph “to maintain and strengthen the reputation of the civil service”
	Article 14 “Admission to political public service”	Article 14 “Admission to political public service” should be supplemented with paragraph 5: The occupation of a political public position is carried out subject to the availability of an impeccable reputation, as well as the moral character of the candidate, formed on the basis of his previous official and off-duty activities.

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*Note:* Compiled by sources (The Law on Combating Corruption, 2015; The Law on The civil service of the Republic of Kazakhstan, 2015; Decree, 2015).

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Thus, summarizing the above, it would be noted the following: the legal direction of ensuring the positive reputation of the state apparatus is one of the key methods of establishing, in the understanding of civil servants, the importance of maintaining reputation, setting standards of professional behavior, establishing responsibility for the negative impact on reputation and ensuring reputation protection. The quality of the performance of the functional duties of civil servants also depends on the quality and accuracy of the presentation of the regulatory framework. In this regard, we believe that legal support for the formation of a positive reputation of the state apparatus and its employees should be implemented in parallel with organizational reforms in the public sector.

## Conclusions

Reputation is clearly becoming fashionable these days, and heads of state

bodies and public figures in many countries are closely monitoring the development of this issue. Given that the state sector and many public organizations are struggling with a negative image associated with a focus on rules, bureaucracy and inefficiency, management of reputation is a promising tool.

An effective strategy of management of the corporate reputation is a useful investment that the organization will be able to use in the future. There are an impressive number of precedents demonstrating that a good reputation plays a positive role in the event of the organization's falls or crises.

Based on theoretical interpretations of the nature of reputation, it can be concluded that, despite the presence of different interpretations formed by various researchers, there is a common understanding that reputation is created over time and has a unique, inimitable character. Ultimately, reputation is a public opinion about the qualities, advantages and disadvantages of the organization in the field of its activities, which includes brand, image, publicity, and when selling it is expressed in the amount of goodwill.

A strong reputation can be useful in conditions of lack of resources and growing public expectations, and it is also useful from the point of view of preserving power and independence. However, without paying due attention to management of reputation, without focusing on uniqueness, consistency and improvement, there is a possibility of encountering problematic aspects that should not be underestimated and that government leaders and officials should be aware of. Nevertheless, the above discussion raises the question about – how management of reputation in the state sector should be understood more broadly, taking into account the above problems in the study of this topic.

A good reputation of the organization can influence a wide range of results, such as organizational legitimacy, organizational independence, and cooperation between organizations. It is noted that there is a need for additional researches on reputation at the individual level and researches on how stakeholders perceive and understand the reputation of the organization. Additional international researches and a comparative understanding of reputation in not only Western but also developing countries are also needed, since they are not available in the literature, which opens up wide possibilities for researches in the field of formation of reputation for scientists in the field of public administration.

It can be concluded from the results of the expert survey that not all interviewed employees understand the meaning of the term “reputation”, while confusing reputation with its components, which indicates a narrow understanding of this term by civil servants. The opinions of civil servants

also confirmed qualitative data that the reputation of state bodies is primarily positive in the eyes of the population, due to the presence of official powers of state bodies. In the same way, the results of the survey of respondents confirmed that there is a need to work on the formation of the reputation of state bodies among various groups of the population in order to meet the needs of different groups.

In view of the above, we consider it advisable to introduce the amendments and additions proposed in the article to some legislative acts of the Republic of Kazakhstan, taking into account the described problems in understanding and perceiving the reputation of the state apparatus. In addition, the advantages of working with reputation described in the article will have a positive impact on the development of the system of public administration, as well as serve as a driver for further scientific research in this industry.

Working on reputation helps to protect organizations from damage, achieve excellent results, or increase trust in administrative institutions and subjects (Capelos et al., 2016; Carmeli and Tishler, 2004; Christensen and Lægread, 2020). On the contrary, poor reputation has significant negative consequences that can lead the state institution to a crisis of legitimacy or even to its termination (Etienne, 2015; Luoma-aho, 2007). Therefore, government managers need to pay close attention to stakeholders by attending relevant meetings, consulting with experts or improving strategic communication (Carpenter, 2004; Maor et al., 2013).

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# *Territories between global competition and Sustainability: Getting out of the Race to the Bottom Trap*

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*“Sustainable Development, a global objective, requires everyone’s contribution to be achieved. The Territories are called to be protagonists of Sustainability Empowerment: the ability to make the right to Sustainability a constitutive principle of a new project of society, where well-being and its Sustainability constitute the fundamental strategic objective”.*

Gian Paolo Cesaretti, Thinking Sustainability, *Review of Studies on Sustainability*, 1/2017

## *Abstract*

The article analyses the conflict between global competition and Sustainability in contemporary territorial development models. The *Race to the Bottom* – characterised by production standardisation and externalisation of economic, social and environmental costs – manifests itself as a trap that compromises the capacity of territories to maintain a state of socially shared well-being over time. Through an empirical analysis of the unsustainability of the current development model and its effects on the four capital stocks (natural, human, social and economic), the work proposes a new competitive paradigm based on the principles of social utility, efficiency and social ethics. This alternative model requires a synergic action of all territorial stakeholders and a systemic approach to social innovation. Only through this transformation will it be possible to overcome the dichotomy between growth and Sustainability, transforming the latter from a constraint to a strategic lever for territorial positioning in a global market increasingly aware of contemporary challenges.

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*Keywords:* socially shared well-being, Race to the Bottom, Social innovation, Social utility, Efficiency, Social ethics.

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## **Introduction**

In September 2015, 193 countries, under the patronage of the United Nations, acknowledged that the current development model is not sustainable.

There is no doubt that, at a global and territorial level, we must seek the most suitable solutions to combine growth and Sustainability<sup>1</sup>. That is, new competitive strategies capable of *supporting socially shared territorial development models* based on: a better balance between qualitative and quantitative aspects of well-being; greater responsibility towards the protection of diversity; greater sensitivity towards overcoming inequalities in access to goods and services, capable of improving the quality of well-being for all; greater attention to the future of new generations.

*This vision of Sustainability of territorial development models rests its foundations on the principles of social utility, efficiency, and social ethics (intra- and intergenerational equity).*

The current structure of the evolutionary process of the conditions of factors, private consumption, investments in the production of goods and services, economic policy, technological and training innovation, is not fully compatible with this vision and with the principles on which it is based.

In fact, given the international reference scenario characterized, among other things, by a “variable geometry” globalization and by a strong consumerism (where those territories less sensitive to Sustainability have prevailed), the growth models of the different territorial systems have been strongly focused on a competition played on strategies of *homologation and externalization of economic, social, environmental costs*. All this has generated types of goods and services not in line with the aforementioned demands of Society (*socially shared state of well-being*)<sup>2</sup> and with the need to symmetrically preserve *the availability, quality, peculiarity and proximity of human, economic, social, natural capital*.

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<sup>1</sup> Maintaining a state of socially shared well-being.

<sup>2</sup> State in which needs are met respecting the principles of social ethics (intragenerational and intergenerational equity).

The combination of these effects (type of goods and services and asymmetric loss of the characteristics of the four capital stocks) is generating more and more negative expectations from the various territorial stakeholders with respect to the ability of the aforementioned competitive strategies to *maintain a state of socially shared well-being over time*. Overcoming imbalances in terms of values, social relations and law<sup>3</sup> to escape the trap of standardization and externalization of costs is, in our opinion, the main way to set a new development trajectory capable of making this *vision of Sustainability* possible.

## **Sustainability: a complex issue**

The concept of well-being Sustainability can thus be defined as: *structure of the evolutionary process of the determinants of well-being, aimed at ensuring the satisfaction of social needs of the community over time*. We can speak of well-being Sustainability in terms of the evolutionary pattern achieved through maintaining a “dynamic balance” between capital stocks (natural, human, social, economic) and a socially shared state of collective well-being.

The determinants of the evolutionary pattern are:

- Household decision-making patterns;
- Investment in the production of goods and services;
- Progress in research and education;
- Appropriate public policies;
- Support from the Non-profit Sector.

The state of well-being that can be pursued through such instruments is structured around the principles of efficiency, utility (effectiveness) and intragenerational and intergenerational equity. This literature review aims to deepen and substantiate this conception of well-being Sustainability by examining the theoretical contributions and conceptual developments that have led to a multidimensional and integrated view of Sustainability.

The concept of Sustainability has ancient roots, but it was with the Brundtland Report (WCED, 1987) that the definition of sustainable development was established as “development that meets the needs of the present generation without compromising the ability of future generations to

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<sup>3</sup> Value-imbalances indicate the existence of disparities in values that structure stakeholders’ decisional models. Social imbalances pertain to the current inadequacy in terms of social cohesion among individuals, classes and productive sectors. Law-related values are attributable to institutions, too often incapable of guaranteeing harmony between market regulations and rights (Cesaretti, 2018).

meet their own needs” (WCED, 1987, p. 43). This definition introduced the basic principle of *intergenerational equity*. Later, Elkington (1997) proposed the model known as the “Triple Bottom Line,” emphasizing the three dimensions of Sustainability: economic, social and environmental. This approach had the merit of overcoming a purely economic view of development, introducing into the debate the need to simultaneously assess the social and environmental impacts of development models as well. However, it is in the “Report on the Measurement of Economic Performance and Social Progress,” by the Commission formed by Stiglitz, Sen and Fitoussi (2009), that the notion that GDP is incomplete as the sole indicator of the state of well-being comes to fruition. The Commission's work explores the concept of well-being by giving it a characterization from both qualitative and quantitative perspectives. In other words, the Stiglitz, Sen and Fitoussi report inseparably links the idea of development and the idea of well-being.

In this regard, the importance of the four capital stocks (natural, human, social, economic) with respect to the concept of well-being Sustainability should be noted. They constitute the “hardware” component of territorial capital, defined by Camagni (2008) as the set of local factors that contribute to the competitiveness of a territory (e.g.: infrastructural, relational, environmental capital, etc.).

Natural capital is “the stock of natural resources that provides a flow of goods and services useful to humanity, now and in the future” (Costanza et al., 1997). It is considered of paramount importance because it cannot be replaced by other forms of capital (Daly, 1990), highlighting the need to preserve it in quantity and quality.

Human capital theory, developed by Becker (1964) and Schultz (1961), focuses on individual knowledge, skills and abilities as determinants of economic development. Sen (1999) expanded this perspective with the capabilities approach, shifting the focus from resources to the substantive freedoms enjoyed by individuals. These contributions highlight the importance of the work of research and training institutions in building a robust and Sustainability-oriented human capital.

Putnam (1993, 2000) defines social capital as the set of “social networks and the resulting norms of reciprocity and trust.” Coleman (1990), on the other hand, highlights how social capital facilitates collective action. These theories support an idea of well-being obtained from a socially shared vision and the importance of Non-profit Sector intervention.

Lastly, economic capital has been widely discussed. In particular, Piketty (2014) analyzed its implications in its use and allocation in terms of social equity. Indeed, Piketty points out that wealth concentration is in fundamental

conflict with Sustainability from a social perspective. Therefore, equal emphasis must be placed on intragenerational and intergenerational equity.

These two principles can be summarized in the concept of “Social Ethics.” Originally, the concept was introduced by Amartya Sen in “Ethics and Economics” (1988). Sen uses the idea of social ethics to argue the impossibility of separating ethical values from economic considerations. Later, Nussbaum (2011) further developed this perspective, arguing that social justice requires the guarantee of basic capabilities for all. Finally, Jonas' (1979) ethics of responsibility introduces the temporal dimension into ethics, arguing that there is a responsibility of present generations to future generations.

Thus, a complex theoretical framework emerges around the concept of Sustainability. The various contributions, in sum, support the idea of Sustainability achieved through *maintaining a dynamic balance between the use of different forms of capital and a socially shared collective well-being*.

Beyond conceptual aspects, the issue of Sustainability manifests all its complexity in the search (in a context characterized by variable-geometry globalization and consumerism) for those competitive territorial strategies capable of maintaining the aforementioned dynamic equilibrium over time. In other words: the issue to be addressed is growth in a global context, but without giving up the socially shared state of well-being.

This, precisely, must be taken care of by new competitive paradigms.

## **The unsustainability of the current development model: empirical evidence**

An analysis of the Unsustainability of the current development model can thus be conducted by referring to the concept of Sustainability recalled in the previous pages: “*maintaining over time a state of well-being socially shared by a community.*”

The September 2015 UN statement rests on empirical evidence that paints a picture characterized by:

- Lack of balance between material living conditions and quality of life;
- Low Accountability in terms of Diversity;
- Accentuation of economic, social and territorial inequalities;
- Low investment in the interest of future generations (especially in Innovation and Research);
- Excessive public debt;
- Low efficiency in the use of capital stocks and modest resilience actions.

Empirical evidence supports this analysis. Specifically, on the balance between material living conditions and quality of life, the Human Development Index (HDI) reports that, in 2023, Northern European countries record values above 0.9 while most developing countries remain below 0.6 (UNDP, 2023/2024). Similarly, the OECD's Better Life Index shows that countries with similar material wealth achieve up to a 25 percent difference on indicators of subjective well-being (OECD, 2023).

The failure to protect Diversity represents a two-dimensional crisis-cultural and environmental-that threatens global human and natural heritage.

The world's linguistic heritage is in grave danger: UNESCO (2023) reports that 43 percent of the approximately 6,000 existing languages are at risk of extinction. The Index of Linguistic Diversity (Terralingua, 2023) recorded a 20% decline between 1970 and 2020, with acceleration in recent times.

Although 151 countries have ratified the Convention on the Diversity of Cultural Expressions, only 62 percent have implemented concrete protection policies (UNESCO, 2022). The World Values Survey (2022) reveals that 45 percent of respondents in 74 countries show little tolerance toward cultural minorities.

The global cultural market is dominated by only five countries that control 70% of trade, causing homogenization (UNESCO, 2022). The Fearon Index (2023) shows a 14% increase in the gap between demographic diversity and institutional representation. At the same time, the Index of Vitality of Traditional Knowledge documents a 31% decline in indigenous knowledge (2000-2023). Only 8% of catalogued intangible heritage receives adequate funding for preservation and transmission (UNESCO, 2023).

The Global Biodiversity Outlook (2023) confirms that none of the 20 Aichi targets have been fully met. The IUCN Red List (2024) certifies that 28 percent of assessed species (42,100 out of 150,388) are threatened with extinction. Funding for biodiversity protection amounts to \$78-91 billion annually, compared to needs of \$722-967 billion (Deutz et al., 2023).

The two crises are interconnected: the decline of indigenous knowledge systems deprives humanity of sustainable environmental management strategies (UNDP & CBD, 2023). This double erosion reduces the resilience of social-ecological systems, limiting their ability to respond to global challenges and requiring an urgent paradigm shift in diversity protection policies.

At the same time, the Gini coefficient, a leading indicator of global inequality, shows an increasing trend in 18 out of 37 countries (OECD, 2023). In addition, wealth centralization is increasing, with the world's five richest men doubling their wealth since 2020, while 5 billion people have

become poorer (Oxfam, 2024). The gender gap is also on the rise; in particular, the wage gap is recorded by the World Economic Forum (2023) at around 20 percent. Finally, the Social Cohesion Index is declining: minus 6 percent in Europe over the past five years (Bertelsmann Stiftung, 2023).

The world has also shown a worrying trend in terms of low investment for the future and growing public debt. In 2023, global public debt reached \$92 trillion, or 123 percent of global GDP, according to the International Monetary Fund's Global Debt Database (2024). At the same time, the global gross savings rate stood at 25 percent of GDP, showing a 2 percent reduction from 2019 (World Bank, 2024). Investment in research and development also remains uneven: while South Korea allocates 4.8 percent of its GDP to this sector, Italy stands at 1.4 percent (UNESCO, 2023). This is compounded by a significant deficit in infrastructure investment, with an estimated \$15 trillion gap by 2040 (Global Infrastructure Hub, 2023). These data paint a picture in which the economic, social and environmental future appears uncertain and characterized by insufficient resources to support innovation and growth.

At the same time, resource use efficiency still shows great room for improvement. Currently, only 8.6 percent of the world economy is “circular,” according to the Circularity Gap Report 2023, signaling inefficient use of stocks. Moreover, the ecological footprint per capita varies significantly between developing countries, at 4.5 tons, and more advanced countries, where it reaches 14 tons (UNEP, 2023). On the energy side, energy use intensity is also improving at a rate of 2 percent per year, but this remains insufficient compared to the 3.2 percent needed to meet global climate goals (IEA, 2023).

On the resilience front, global action still appears to be insufficient compared to the existing challenges. To date, only 102 countries out of 196 have submitted National Climate Change Adaptation Plans, as reported by the UNFCCC in 2023. Adaptation funding also falls far short of what is needed: \$28.6 billion was allocated in 2023, compared to an estimated need of \$300 billion (Climate Policy Initiative, 2023). Moreover, 25 percent of critical infrastructure in OECD countries still does not meet disaster resilience standards, putting security and economic stability at risk (OECD, 2023). In an environment that is increasingly exposed to extreme events, this lack of concrete action is likely to further exacerbate global vulnerabilities.

Thus, one has to wonder about the causes of such unsustainability.

## ***The Race to the Bottom Trap***

Since the second industrial revolution, innovation and technical progress

have led to an increasingly widespread massification of goods and services, at decreasing prices. In response to this phenomenon, the characteristics of the global market have changed, with consumerism emerging on the one hand and variable geometry globalization on the other. The latter is configured as a globalization in which a strong liberalization of the movement of goods, services and capital is not adequately accompanied by a universal sharing of rights and rules (Cesaretti G.P., 2017). Consumerism and variable geometry globalization are therefore the characteristics of the global market that have led territories to adopt competitive strategies based on the standardization of production models and the externalization of economic, environmental and social costs. This phenomenon can be briefly referred to as the “*Race to the Bottom*”<sup>4</sup>.

Competitive strategies based on the *Race to the Bottom* have distinctive characteristics that deserve an in-depth analysis. They focus primarily on the cost factor rather than on quality, making the constant search for the reduction of production costs the main competitive driver. Such strategies are typically oriented towards the conquest of markets characterized by a standardized demand, where competition is mainly played on price.

A particularly problematic aspect of these strategies lies in the generation of significant negative externalities both on the quality of the Society's well-being and on the four stocks of territorial capital: natural, human, social and economic. Goods and services produced through *Race to the Bottom* strategies have several problematic characteristics that significantly affect territorial Sustainability. First of all, these products tend to have a reduced social utility. The value perceived by demand is often negative in qualitative terms, since it favors quantity and price over quality and durability, responding more to consumerist logics than to the real needs of the community.

A second critical aspect concerns the efficiency in the use of resources which, evidently, impacts the ability to preserve them over time. The production of these goods and services, in fact, attenuates the responsibility towards maintaining the availability, quality and peculiarity of capital stocks. This entails several risks: a growing difficulty that can lead in the medium term to an increase in the costs of supplying factors; a progressive reduction in the diversity of available goods and services; a qualitative deterioration of the overall offer; last but not least, a problematic legacy for future generations.

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<sup>4</sup> Situation in which companies, states and nations aim for competitiveness by sacrificing the quality of products and services, workers' rights, environmental regulations, etc. to reduce costs and gain a competitive advantage.



The third critical element concerns the uneven impact on growth at the territorial level: the homologation and dumping strategies adopted in the *Race to the Bottom* generate profoundly asymmetric consequences between the different territorial contexts. Some territories, equipped with initial competitive advantages or greater flexibility in adaptation, manage to temporarily intercept the benefits of these strategies, while others mainly suffer the negative effects. This divergence in territorial growth trajectories manifests itself in multiple dimensions: economic, with growing gaps in income and employment levels; social, with disparities in access to essential services and in opportunities for personal development; environmental, with uneven concentrations of ecosystem deterioration; infrastructural, with imbalances in public and private investments. The result of these divergent dynamics radically compromises the objective of territorial cohesion, creating an increasingly fragmented and unequal economic and social fabric.

At the same time, there is limited attention to investments in resilience, i.e. recovery, reuse, recycling and regeneration actions that could mitigate such negative impacts. This approach also highlights a poor consideration of the principle of intragenerational and intergenerational equity, demonstrating a substantial disinterest in territorial cohesion (because it can affect social classes and productive sectors in a different/unequal way) and in the long-term impacts on future generations. The action of externalizing costs, in fact, also impacts intergenerational equity, transferring to future generations a legacy of structural imbalances and environmental degradation that are increasingly difficult to remedy.

From the diffusion of goods and services produced in such a context, negative expectations have developed over time on the part of stakeholders. In fact, the growing awareness of the negative effects of competitive strategies in *Race to the Bottom* and the objective analysis of their impact has created concerns about their ability *to maintain a dynamic balance between territorial capital and the socially shared State of Well-being in the territories*.

These negative expectations induce the various stakeholders of the Porterian model to change their behavior. The conscious consumer reduces the demand for goods and services produced according to the homologation-outsourcing model. Businesses, by slowing down the rate of investments, suffer in terms of efficiency, productivity and, therefore, competitiveness. Public institutions slow down spending in favor of production and consumption based on the *Race to the Bottom*. The research and training sectors disinvest from technological and training innovation in support of those sectors. Finally, the Non-profit Sector directs its advocacy action in

favor of a demand for efficient, socially useful goods and services, more in line with the principle of social ethics.

Actions arising from negative expectations also determine economic consequences on the trade balance, therefore a general slowdown in growth and, therefore, a decrease in the ability to maintain the socially shared State of Well-being over time. A paradox thus emerges: the *Race to the Bottom* strategies, although conceived to stimulate economic growth, end up compromising it over time, highlighting the intrinsic relationship between growth and Sustainability. A competitive policy based on the *Race to the Bottom* is therefore incompatible with the preservation of a socially shared state of well-being, since the latter requires a balance between qualitative and quantitative dimensions of well-being, respect for diversity, reduction of inequalities and responsibility towards future generations. The described mechanism of the *Race to the Bottom* recalls, by analogy, the “liquidity trap” theorized by Keynes (1936) in his “General Theory of Employment, Interest and Money”: an economic situation in which, despite interest rates and prices being very low, families and businesses prefer to keep money instead of investing or spending it, making any further monetary stimulus ineffective. As in the Keynesian trap, the mechanism analyzed in this article, the *Race to the Bottom Trap*, is configured as a condition in which economic policy for growth, focused on competitive strategies mainly oriented towards standardization and externalization, is no longer able to exert any positive influence on the demand for goods and services thus obtained and, consequently, on development. This translates into the inability to continue to satisfy, over time, the social needs of a socially developed community.

If in the Keynesian trap, therefore, monetary policy becomes ineffective because an absolute preference for liquidity develops, in the *Race to the Bottom Trap*, competitive strategies of standardization and externalization, aimed at growth, risk becoming ineffective because they generate conditions in which it becomes impossible to satisfy the needs of the community in a sustainable way. The analysis conducted highlights the need to overcome the apparent dichotomy between growth and Sustainability.

The current challenge therefore does not consist in rejecting policies for growth, but in redefining their nature and the methods of achieving them. It is necessary to develop competitive strategies alternative to the *Race to the Bottom*, capable of valorizing territorial specificities in the mechanisms of market functioning. This requires a rethinking of the dominant paradigms, orienting them towards the creation of shared value rather than towards the mere reduction of costs. Only through this transformation will it be possible to guarantee both the growth of the territories and their Sustainability over time, with a view to shared prosperity.

## **Territories towards Sustainability: getting out of the *Race to the Bottom Trap***

The fundamental issue that territories are facing in the current context of globalization is that of resolving the dilemma of the conflict between growth and Sustainability. The apparent impossibility of making them converge represents one of the most relevant challenges, to date, for territorial systems. They are in fact called upon to find a balance between global competitive pressures and the need to guarantee a socially shared State of Well-being over time. The answer to this dilemma does not depend, as one might think, on the pursuit of competitiveness in itself, which is not intrinsically incompatible with a state of Sustainability. Rather, it is necessary to pay attention to the competitive strategies adopted by companies and to the spending patterns of families.

As analyzed, territorial development models are, currently, mainly based on the *Race to the Bottom*, that is, characterized by homologation and externalization of costs. The contemporary challenge consists in seeking new models of production and consumption capable of combining economic growth and Sustainability. There is therefore a need to implement a new territorial competitive model, inspired by the principle of social utility<sup>5</sup>, capable of determining a growth compatible with a state of socially shared well-being. This growth must be based on a type of goods and services capable of satisfying a demand that is more attentive to the qualitative aspects of well-being, more sensitive to inequalities and social cohesion, more responsible towards diversity and able to consider the needs of future generations.

The implementation of the new model requires, first of all, an operation of literacy (empowerment) of territorial stakeholders, encouraging their awareness and orienting them towards decision-making models no longer based on homologation and dumping. This requires the synergic involvement of all territorial actors. Companies are called to adopt Corporate Social Responsibility practices and to develop actions oriented towards a strong territorial Corporate Identity. Families must instead evolve towards conscious consumption behaviors. The Government must provide for the reorientation of incentives towards sustainable production. The *supporting sectors* (i.e., research and education) must engage in research and training for technological and educational innovation oriented towards Sustainability (Viola et al., 2018). Finally, the Non-profit sector must introduce advocacy

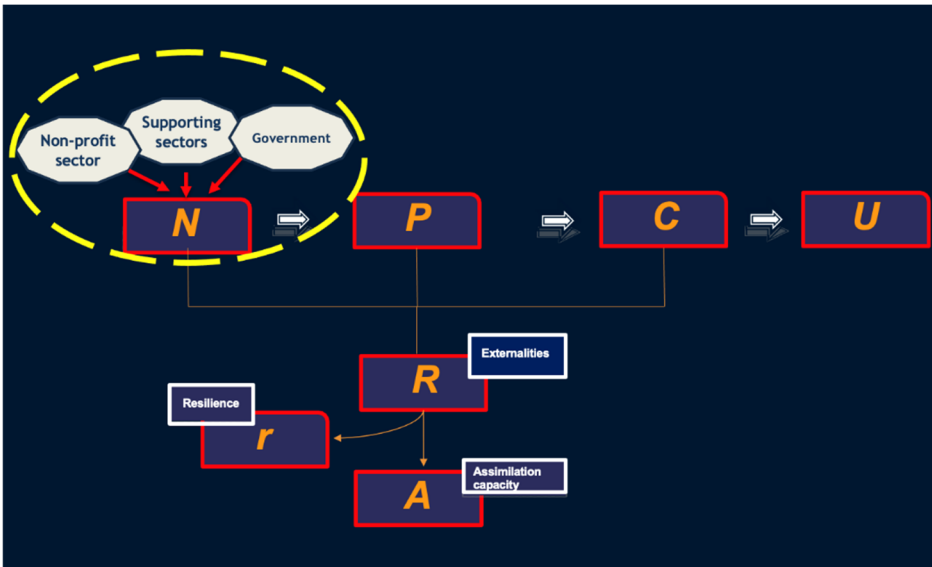
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<sup>5</sup> Social utility refers to the ability of goods and services to respond to the values perceived by the community, such as the quality of well-being, respect for diversity, social cohesion and attention to new generations.

actions to support literacy strategies for new production and consumption models, increasingly oriented towards Sustainability.

In parallel with literacy, it is necessary to implement a change in the economic paradigm, moving from a linear economic system to a circular one, aimed at producing goods and services inspired by the principle of social utility and obtained in compliance with the principles of efficiency and social ethics. With regard to *efficiency*, stakeholders must commit to the protection, preservation and valorization of the four capital stocks (“N”). In particular, it is mainly the Government, Supporting Sectors and the Non-profit Sector that must implement actions to preserve capital stocks in terms of availability, quality and peculiarity (see Figure 1).

Figure 1 - Modified Pearce-Turner Model, Efficiency to preserve capital stocks



Source: Simone Cesaretti Foundation Ets, 2025

Companies (“P”) must instead aim to optimize the use of stocks, introducing product and process innovations. Finally, consumers (“C”) must change their spending models, opting for a greater balance between quantitative and qualitative aspects of well-being (see Figure 2).

To pursue the principle of social ethics, instead, businesses and families (“P” and “C”) must commit to minimizing the negative externalities they produce (“R”, i.e. waste, pollution, etc.) and to introduce the necessary resilience actions (“r”) to reduce their impact on resources (see Figure 3).

These actions of internalization of costs and resilience are motivated by the principle of social ethics as they are aimed at reducing asymmetries within the territory and better preservation of the value of capital stocks for subsequent production cycles.

Figure 2 - Modified Pearce-Turner model, Efficiency to modify production and consumption  
 Source: Simone Cesaretti Foundation Ets, 2025

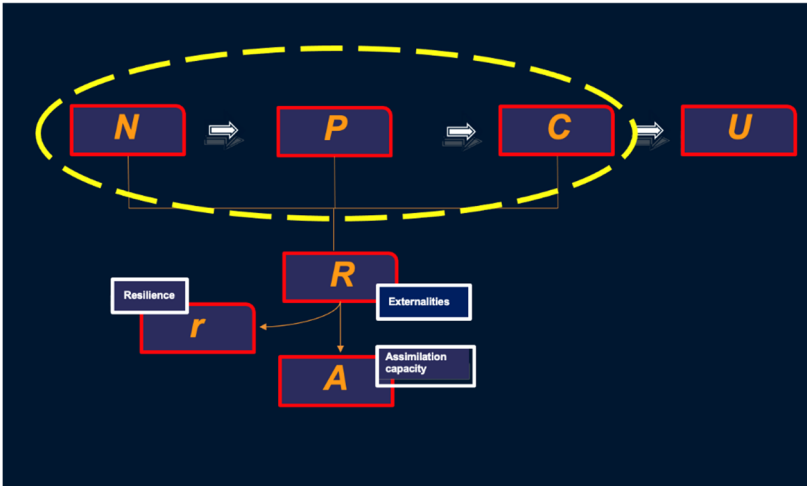
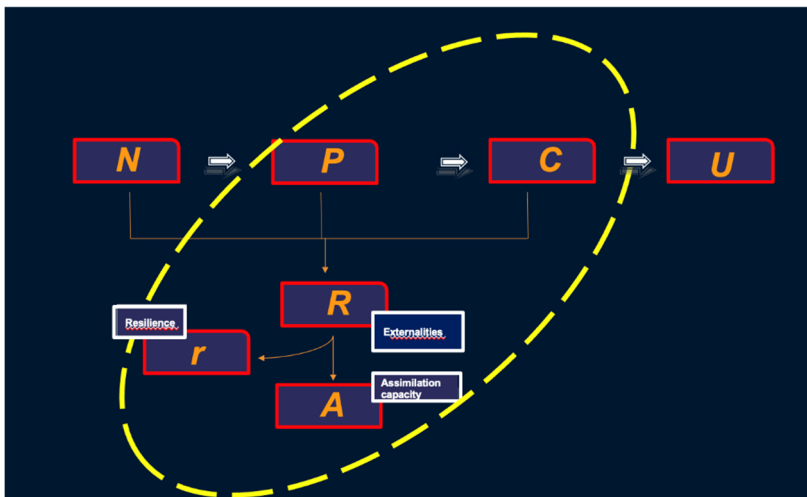


Figure 3 - Modified Pearce-Turner model, Minimizing externalities and implementing resilience strategies  
 Source: Simone Cesaretti Foundation Ets, 2025



Source: Simone Cesaretti Foundation Ets, 2025

Territorial systems that have set up their growth strategy in a way that is compatible with Sustainability will therefore be able to define new territorial marketing strategies. They will be able to direct the local offer, obtained in compliance with the principles of efficiency and social ethics, towards those markets that are more dynamic and capable of recognizing, in terms of price, its greater social utility.

This system approach allows us to overcome the dichotomy between growth and Sustainability, considering the latter no longer as a constraint on growth, but as a strategic lever for territorial positioning in a global context that is increasingly aware of contemporary environmental and social challenges. The dynamic balance between preservation of territorial capital (“N”) and a state of socially shared well-being (“U”) represents the path to follow to guarantee a truly sustainable development model.

## **The role of Social Innovation**

Innovations are the fundamental tool for changing stakeholders' decision-making models and reorienting them towards the fundamental principles of social utility, efficiency and social ethics. In particular, cultural innovation is a fundamental pillar for overcoming the value imbalances of individuals and businesses, leading them towards a more balanced distribution of disposable personal income and investments. Innovation redistribution policies, on the other hand, must guide local institutions to compensate for the possible negative effects deriving from regulatory imbalances, creating redistributive frameworks that balance competitiveness with the protection of capital stocks and the maintenance of a state of socially shared well-being.

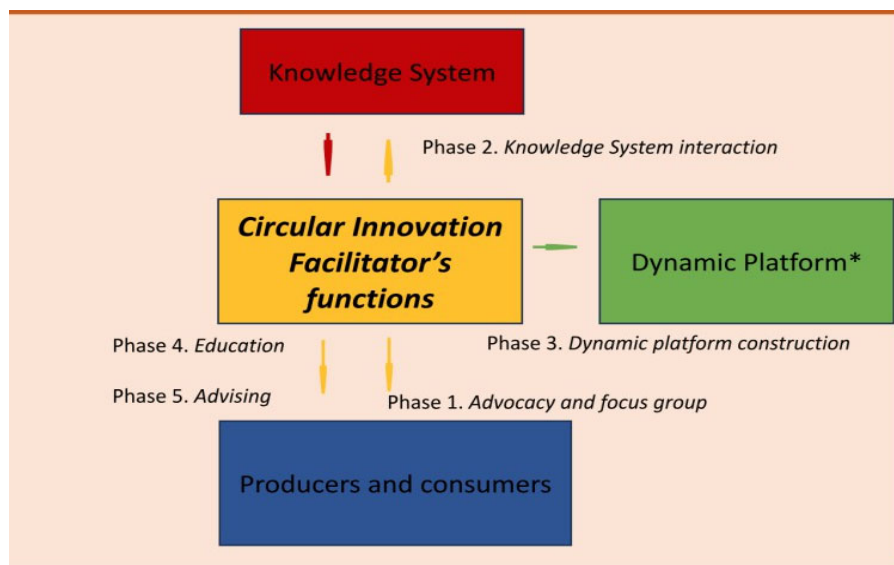
Both these innovations are the catalysts for models of technological and educational innovation and economic innovation. Technological and educational innovation must support research and implementation of the technologies needed to improve the preservation of capital stocks. Economic innovation, on the other hand, must introduce the production and consumption models needed to optimize efficiency in the use of stocks and internalize costs by applying the principle of social ethics.

The introduction of the new territorial competitive model must be accompanied by a structured operation of transfer of innovations in the territories, transforming them into social innovations, that is: concrete applications of an innovation. They can also be indicated with the term socialized innovations (Murray et al., 2009) and are capable of producing generalized and lasting changes in social relations and in the decision-making models of local stakeholders. Therefore, such innovations become

fundamental to lead territories on a sustainable path. Therefore, they can also be defined as Sustainable Innovations, that is: innovations capable of improving social utility, efficiency and social ethics.

In this perspective, the "Innovation Catalyst System" (Viola et al., 2023) represents an effective operational model to implement social innovation in territories (see Figure 4). This system offers a structured framework to catalyze and facilitate the adoption of innovative practices oriented towards Sustainability. The model operates by connecting the various territorial stakeholders with the integrated knowledge (Misso, 2010) through the figure of a mediator, the Innovation Facilitator, who is responsible for collecting the needs of the community and supporting the transfer of innovative practices necessary to satisfy them in a sustainable way.

Figure 4 - Innovation Catalyst System



Source: Simone Cesaretti Foundation Ets, 2025

In addition to the territorial dimension, it is, finally, fundamental to consider the importance of coordinated actions at a global level, moving towards a strengthening of multilateralism and towards overcoming those regulatory imbalances that are, currently, the cause of a lack of harmonization between the globalization of market rules and the globalization of universal rights.

This integrated approach to the dimensions of innovation allows us to overcome the dichotomy between growth and Sustainability, transforming territories from protagonists of the *Race to the Bottom* to pioneers of a new paradigm of territorial development capable of combining global competitiveness and socially shared well-being.

## Final remarks

The growing demand of society towards the search for development models capable of maintaining a state of socially shared Well-being over time is progressively slowing down the demand for goods and services resulting from economic policies for growth, based mainly on *Race to the Bottom* strategies. That is, impacting on elements connected to the quality, Diversity of goods and services, protection and enhancement of territorial capital.

In order to pursue, over time and in the territories, the maintenance of a state of socially shared Well-being, it is therefore essential to abandon these competitive strategies and move, by the various territorial stakeholders, towards a new strategy based on the principles of social utility, efficiency and social ethics. A strategy that is based, as mentioned, on an action of territorial literacy, a change of economic paradigm and on territorial marketing policies capable of directing goods and services towards those markets attentive to a non-segmented approach to individual and collective Well-being and persistent over time.

Within this new context, the concept of Innovation, declined in all its forms (cultural, redistributive, economic, technological/educational, regulatory), plays a central role. However, it is up to the territories to know how to build within themselves those hubs capable of interconnecting the different territorial stakeholders (Innovation Catalyst System).

In short, combining growth and Sustainability requires the ability to know how to move, at a territorial level and, in perspective, at a global level, to new competitive paradigms supported by a system approach to Innovation.

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# *Government e-procurement as a type of modern information technology*

by *Hiflobina Dermaku\**, *Minerva Dermaku\*\**

## *Abstract*

The relevance of the subject stated in this study is due to the substantial importance of the issues of introducing electronic processes into the public procurement system, which will ensure optimal implementation of all their stages. The purpose of this study is to examine the processes of building a system of public electronic procurement as one of the key varieties of modern information technologies. In the course of the study, a combination of theoretical methods of analysis, synthesis, and generalisation of information was used. The results were obtained, indicating the existence of mandatory procedural requirements for the implementation of public electronic procurement, compliance with which guarantees the effectiveness of the operations conducted. In addition, it was established that the practical application of the public electronic procurement system has a number of advantages, among which the following should be noted: full transparency and high availability of such operations, greater cost-effectiveness compared with procedures involving the use of paper media, and the possibility of more efficient administration of operations performed. It was also noted that it is necessary to comply with the intermediate stages of the electronic public procurement process, which are mandatory in terms of achieving the ultimate efficiency of the operations performed. The real prerequisites for the development of the electronic public procurement system in the Republic of Kosovo are highlighted, considering the established political realities and the developed regulatory framework.

*Keywords:* relationship between suppliers and buyers, bidding organisation, dynamic supply chain, digital transformation processes, sustainability.

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## 1. Introduction

In general, the e-procurement process in the public procurement system involves the use of electronic means when performing transactions of this kind in relation to various goods and services. This is especially relevant in the context of the current pace of development of information and digital technologies around the world in general and in Albania in particular. In contrast to the classical type of procurement, e-procurement is characterised by a high degree of transparency of transactions, stimulates competition, and strengthens relationships with entities involved in the process. Therewith, the transfer of the public procurement system to an electronic format provides substantial advantages over the use of paper media, which are expressed in ensuring a high level of data protection and safety, increasing the efficiency and reliability of document management.

Sustainable procurement practices integrated into e-procurement systems enable governments to prioritise environmentally friendly products and services, fostering a more responsible use of resources (Novakovska et al., 2025). The difficulties arising in the organisation of the e-procurement system, and methods of their effective resolution have not been sufficiently investigated. Some advantages of the public electronic procurement system are presented to solve this problem, including their key stages, the maintenance of which is necessary to ensure the efficiency of the entire cycle of technological operations. The integration of sustainability criteria within public e-procurement not only enhances operational efficiency but also aligns with global efforts to promote green policies and sustainable development goals (Dmytriiev et al., 2019; Rysin and Sukh, 2024).

Researchers Caloghirou et al. (2020), who reviewed the prospects for introducing a public e-procurement system in local authorities in Greece, noted that, to date, there is still insufficient data on the effectiveness of introducing technological innovations of this kind. In turn, Kalaitzi and Tsolakis (2022), in a study on the general principles of the organisation of electronic supply chains, came to the conclusion that the electronic public procurement system can be implemented differently in different countries. The subject was developed in a study by Ozbilqin and Imamoglu (2021). It is noted that conventional procurement processes require the introduction of a number of modern information technologies to reduce the time of workflow. This will allow optimising costs, achieving their transparency and increasing the efficiency of all operations.

The Albanian researcher Hashami (2016), in his guide on the implementation of public electronic procurement, notes that the process of organising electronic public procurement in the Republic of Kosovo is still

far from perfect since the relationship between bidders is not clearly regulated. Nevertheless, the study does not provide an exhaustive answer to questions about the effective regulation of relations between all participants in the electronic public procurement process. A similar subject is raised in the study by Patrucco et al. (2019), devoted to the examination of the issues of choosing the optimal form of design and implementation of the organisational form of local public procurement. According to the authors, it is necessary to develop and implement a conceptual framework for the organisational design of public procurement while distinguishing between the dimensions of the macro, micro, and process levels. However, a number of problematic aspects of the interaction of the mentioned levels were not considered by the authors.

The main purpose of this study is to consider the principles of management of the electronic public procurement system as one of the types of modern information technology solutions.

## **2. Materials and Methods**

In this scientific study, a combination of theoretical methods of analysis, synthesis and generalisation of information obtained in the examination of a wide range of problematic aspects included in the stated subject was used. The theoretical basis of this study is an analysis of the research of a number of researchers who have considered the organisation of public procurement processes as a type of modern information technology, and analysing their role and importance in various spheres of life of modern society. The use of the analysis method provided an opportunity to assess the prospects for the development and implementation of a system that provides for the possibility of submitting applications for participation in electronic auctions, which is most noted in the markets of a number of developed countries, such as the USA, Canada, Japan, Australia. In addition, a theoretical assessment of the prospects for the introduction of an electronic public procurement system is given, in particular, on the example of the prospects for the future development of the public electronic procurement system in the Republic of Kosovo.

The use of the synthesis method made it possible to identify a number of key advantages of the introduction of a public electronic procurement system in comparison with the classical procurement system, which involves placing all processed information on paper. The study also considers how integrating sustainability criteria into the e-procurement system can enhance resource efficiency, reduce environmental impact, and support long-term economic

resilience. The application of the generalisation method made it possible to establish the intermediate stages of the e-procurement process as factors ensuring higher final efficiency of the entire process in general. The role of preparatory measures involving the participation of both parties involved in the process (the client and the customer) is assessed, and the relationship of all stages of e-procurement in a single process is presented, in which these stages are differentiated by the degree of focus and complexity of all operations performed.

The combination of the presented methods of this study made it possible to clearly formulate the prospects for the introduction of an electronic public procurement system in the Republic of Kosovo at this stage, based on the existing legal and regulatory framework. This made it possible to analyse the real difficulties that have arisen in the implementation of this system in the country today and the practical results that have been achieved at the stage of its direct implementation. In addition, an assessment is given of the relationship between the practical implementation processes of the public electronic procurement system on the example of a single state (the Republic of Kosovo) and the currently existing legal framework governing the procedure for monitoring compliance with the legality of transactions. Separately, the role of government agencies in ensuring control over compliance with the legality of operations and the continuous monitoring of their final effectiveness is assessed.

### **3. Results**

Public electronic procurement (hereinafter: e-procurement) is a set of procedures used instead of paper procedures, i.e. the use of IT procedures and electronic communication and data processing at all stages of public procurement. E-procurement includes the implementation of electronic processes that support various stages of the procurement process – publication of information on public procurement (tender), provision of tender documentation, submission of applications, expert evaluation of applications, conclusion of contracts, ordering of goods/services, invoicing, and payment. Therewith, billing and payment procedures are typical not only for public procurement processes – they, being typical for broader markets, can also be applied to the e-procurement system. The most difficult stages are the submission of applications for participation in the tender and their consideration due to the fact that in such cases, it is required to prepare a sufficiently large number of documents covering various aspects of the interaction of the parties directly involved in the transaction. In several

European countries, there has been progress in the evaluation of tenders and the execution of electronic orders. All countries belonging to the European Union have developed and implemented a system providing for the possibility of submitting bids in electronic form, the same is noted in the markets of other developed countries, such as the USA, Canada, Japan, and Australia (Hysi et al., 2024; Ketners, 2024; Krasivskyy, 2024).

The use of an e-procurement system has a number of advantages. Through the introduction of automation systems and the centralisation of information flows for individual purchases (tenders), electronic procurement can improve the access of business entities (potential bidders) to public procurement (Spytska, 2023). Furthermore, e-procurement supports sustainability by minimising paper waste and reducing the carbon footprint associated with traditional procurement methods (Shahini, 2024). Procuring entities and other bidders receive assistance by reducing administrative costs and speeding up individual procurement procedures. By integrating sustainability principles, e-procurement enables the selection of environmentally friendly suppliers and products, fostering responsible consumption and production (Galkin et al., 2019; Burmistrov et al., 2024; Nakonechna and Samsonova, 2021). The transition to electronic procurement opens up wider opportunities for optimising and reorganising the procurement process, while the transition to electronic procurement will not and should not mean copying and converting previous paper procedures into electronic format. In addition, e-procurement can be integrated into other (electronic) organisation activities (for example, inventory, contract management, and auditing).

Sustainable e-procurement practices also contribute to long-term economic resilience by ensuring resource efficiency and reducing environmental impact. Authors are talking about such stages as: electronic search (eSourcing), electronic advertising (eNoticing), electronic information (eInforming), electronic access (eAccess), electronic submission of applications (eSubmission), electronic implementation of the procedure (eTendering), including the stages of eAccess and eSubmission, opening and evaluation of applications received electronically (eAwarding), electronic complaint-statement of protection of rights (Electronic complaint), conclusion and maintenance of contracts by electronic means (Electronic contract), preparation and issuance of electronic orders (eOrders), preparation and transfer for payment of an electronic invoice (eInvoicing), electronic payment for ordered goods, services provided, or work performed (ePayment). Electronic research (eSourcing) includes preparatory activities conducted by the customer to collect and use information for planning public

procurement, preparing more frequent calls and tender documentation (Delmonico et al., 2018; Liu et al., 2019).

Electronic information (eInforming) is a set of tools through which a potential bidder receives information about purchases in which initial interest has been expressed (Aviv et al., 2008). Electronic information can occur at several stages: planning, initiation, and the final stage of the procedure. At the planning stage, the bidder, who was initially interested in individual objects of public procurement (by zones, groups, codes from the general procurement dictionary), receives information about all purchases (or purchases by an agency from one geographical area or a duly determined purchasing authority) of public procurement items in which they are interested. Next, the information system sends a message to this subject when an invitation to participate in the specified public procurement appears, after which it can register as a person interested in this purchase and receive all information about it (changes in the tender documentation, questions and answers, explanations). Electronic advertising (eNoticing) – the advertising of tenders and their publication in the right place (at the moment, it is mainly a portal, the applicant's page and the portal of the government print edition of the Republic of Kosovo, and a database of regulations). The tender documentation is also stored in electronic form and, therefore, can be transferred to all interested parties. The parties are invited to participate in the specified public procurement procedure. Electronic implementation of procedures (eTendering) includes electronic access to tender documents and submission of applications in electronic format. Electronic access to tender documents (eAccess) provides the interested party with the opportunity to access the tender announcement and documentation and also a kind of support in preparing for the tender (for example, clarifications, questions, and answers). Submission of applications in electronic format (eSubmission) is a mandatory element for taking part in electronic bidding. This allows the interested party to simply, efficiently, and economically submit applications to the customer, who, using electronic services, can receive, accept, and process the application according to the requirements of current legislation.

In Kosovo, public procurement, as a very specific area for the new state, appeared immediately after the end of the war in 1999, so it has a short history dating back almost two decades. The international community laid the foundations for the implementation of the public procurement system in Kosovo through the UN Mission in Kosovo, UNMIK. As Kosovo develops its e-procurement infrastructure, incorporating sustainability considerations can enhance efficiency while aligning with EU environmental policies. Later, after the institutions of Kosovo were established and strengthened, the Assembly of Kosovo regulated this area with a special law that entered into



force on June 9, 2004, and is known as the “Law on Public Procurement in Kosovo” (Adjei-Bamfo et al., 2019; Padhi and Mahapatra, 2011). On June 6, 2007, several amendments were made to this law, bringing it closer to European legislation on public procurement, obstacles to Kosovo’s integration into European mechanisms. This law was also amended in 2009, 2010 and 2011. These amendments and additions allowed the residents of the Republic of Kosovo to obtain a law that is even better harmonised with the legislation and rules of the European Union on public procurement. Legislative acts and modern laws, and the entire legal infrastructure in the field of public procurement regulating these activities in Kosovo, are a good basis for the development of the public e-procurement system in the country (Choi et al., 2016; Zhang et al., 2018). At first, public procurement in Kosovo, as in other countries with economies in transition, faced various difficulties since the officials involved in this system had little or no experience, and there was no real competition in the local market. Even in this area, Kosovo was a special case, as it emerged from a war that caused great damage to its economy. The State Administration has not recognised the tradition of public procurement. However, over time, after the development of a public procurement policy and the completion of relevant legislation, the definition of rules and remedies, public institutions and public administration entered into implementing a public procurement system. It can be said that a number of results have been achieved in the field of public procurement in Kosovo in a short period of time. The results were also achieved thanks to the work of international. The procedural requirements for electronic procurement they include certain provisions presented in Table 1.

The result of the implementation of the e-procurement system is that buyers and suppliers of business solutions for e-procurement receive a number of advantages: elimination of administrative costs, reduction of the purchase cycle period, better stock management, increased company-wide productivity, reduced internal and supplier errors, and the ability to strategically manage purchases in line with broader business goals.

Table 1 – General procedural requirements for electronic procurement

<i>Requirements</i>	<i>Provisions</i>
A higher level of operations performed compared to typical purchases	The implementation and acceptance of e-procurement should exceed the same level as manual procurement.
Ensuring the phased implementation of procurement plans	The departments undertake to use the e-procurement system according to a phased plan.
The impossibility of parallel trading	It is recommended not to allow parallel bidding (using manual and electronic forms) beyond a short time period.
Changes in the terms of the tender documentation	The terms of the tender documentation can be changed, if necessary, to adapt to electronic procurement.
The possibility of organising electronic trading	Online procurement methods such as electronic bidding can be adopted.
The obligation to register via the Internet to participate in the auction	Registration of suppliers via the Internet is established as a prerequisite for participation in public procurement through the electronic procurement system, and it is also mandatory to submit responses to applications through the electronic procurement system.

*Source:* compiled by the authors.

#### 4. Discussion

In the presented scientific study, the issues of the organisation of the public electronic procurement system, as one of the varieties of modern information technologies, were considered. Therewith, it was established that this system has a number of advantages over conventional purchases, in addition to standard procedural requirements for the implementation of operations of this kind, which ensures the achievement of high efficiency of operations. The results were discussed in the context of their analytical comparison with the results of the study on a number of related subjects.

Researchers Hung and Zhan (2023) examined a number of problematic aspects of public e-procurement in the context of irrational resource allocation. According to researchers, the government performs the function of the main buyer in the country’s economy precisely through public procurement. Therewith, the process of building a public electronic procurement system as one of the varieties of modern information technologies is quite complex and requires additional research to form a holistic picture of its understanding. This is fully consistent with the results obtained in the framework of this study because conclusions of this kind

emphasise the complexity of the organisation of the public procurement system as a type of modern information technology.

In turn, Zou et al. (2023) conducted a joint examination of the real prospects for the formation of e-government to improve the management of numerous technological processes and electronic supply chains. Researchers note that the internal mechanism for developing electronic public procurement as a type of information technology in the context of the development of e-government to improve all management aspects represents a common vision of processes in government structures in the era of the spread of digital technologies. The opinion of the researchers is fully confirmed by the results obtained during this study since it raises issues of the relationship between a wide range of aspects of the development of the electronic public procurement system and processes that are the responsibility of state authorities.

Therewith, Yevu et al. (2021) jointly examined a number of general principles for implementing digitalisation processes of construction supply chains in a single e-procurement system in a single context of the application of new technologies and opportunities for sustainable development. Researchers have concluded that in modern conditions of rapid progress in the field of digitalisation, the introduction of digital technologies into the procurement management system is widely promoted to promote revolutionary innovations in the artificial environment. Research in the field of examining the principles of supply chain formation and e-procurement at all levels, including public procurement, has created a substantial theoretical basis for assessing the role and place of public e-procurement in a unified system of modern information technologies. The conclusions of the researchers seem to be largely controversial since the results of the study conducted in the field of public electronic procurement are largely subjective and depend on the position of a particular researcher on a wide range of issues taken by him for consideration.

Xu et al. (2022) developed the subject of e-procurement system management. According to the authors, the number of papers on e-procurement in the closed-loop economy has increased substantially in the last few years, and substantial attention has also been paid to e-government procurement in this context. The researchers conclude that the closed-loop economy is an industrial economy, while public procurement as a type of modern information technology occupies one of the key places in it. The researchers' conclusions are fully confirmed by the results obtained in this study since they emphasise the importance of public electronic procurement in a closed-loop economy and assess their role and place in modern information technologies.

The research group consisting of Yan and Lyu (2023) considered a range of problematic aspects of the role of e-government in reducing the financial deficit of authorities at various levels in the organisation of e-procurement processes. According to the research team members, the centralisation of financial leverage management in unitary states does not contribute to the promotion of e-government by electronic authorities, which negatively affects the organisation of the public e-procurement process. Ensuring sustainability in e-procurement can also mitigate financial risks by promoting cost-effective and environmentally conscious decision-making (Abbasova et al., 2023; Kerimkhulle et al., 2023). Such operations, one of the varieties of modern information technologies, are associated with high risk and must be controlled using the most advanced technical means (Lutsenko et al., 2019). The researchers' conclusions seem to be largely controversial since, with proper organisation and effective management, electronic public procurement, as a type of information technology, is not affected by risk factors.

The raised subject is being developed by Concha et al. (2012), examining the processes of public e-procurement and noted that purchases of this kind are rapidly becoming an integral part of national e-government programmes since they provide active transparency and promote effective relationships with suppliers of goods and services. Therewith, as a result of the conducted study, it is concluded that it is necessary to pay more attention to determining the performance of e-government procurement portals and assessing the achievement of set goals in the organisation of supply chains, assessing the final effectiveness of operations of this kind. The opinion of researchers is fully confirmed by the results of this study since they emphasise the importance of e-government procurement portals in ensuring the effectiveness of supply chain organisation.

Therewith, Panayioyou et al. (2004) investigated the general principles of organising an electronic procurement system to optimise public procurement. Researchers draw attention to the fact that many developed and implemented e-procurement models pursue the goal of introducing new information technologies, particularly e-business. The authors concluded that similar models have been actively developed in recent years for organisations operating in the public sector throughout Europe, and their activities should be managed through the use of the most modern information technology solutions. The conclusions of the researchers are fully confirmed by the results of this study since they reflect the role and importance of the public electronic procurement management system for the development of electronic business in general.

In turn, Singh and Chan (2022) considered a number of issues of the impact of the public electronic procurement system as one of the varieties of modern information technologies on the sustainable efficiency of product supplies. The researchers note that in recent years, e-procurement has become firmly established in everyday life and has substantially transformed the previously formed procurement system. A sustainable approach to e-procurement ensures not only economic efficiency but also compliance with environmental and social responsibility standards (Miliienko, 2023; Nurtazina et al., 2015). In this context, public e-procurement has substantial prospects, especially considering the need to build effective supply chain management in a modern business environment using information and communication technologies (Lis et al., 2024; Sheryazdanova et al., 2020; Ismayilov et al., 2024). This is consistent with the results of the study, as the prospects for improving the public procurement system are highlighted.

Jiang et al. (2023) examined the general principles of the introduction of digital technologies into the management system of public procurement processes. The researchers note that in the modern era of digitalisation, digital technologies find their application in various spheres of modern society, including developing the public electronic procurement system. Therewith, the formation of supply chains in the implementation of electronic procurement in various spheres of life of modern society involves the use of a number of information technologies that are also applicable in the system of public electronic procurement. This conclusion is consistent with the results obtained, as it highlights the close relationship between government supply chains and information technologies currently operating.

Thus, the discussion of the results obtained during the implementation of this study, in the context of their comparison with the results and conclusions of other researchers on a wide range of problematic issues of the implementation of public electronic procurement as one of the varieties of modern information technologies, demonstrated their fundamental correspondence in a number of key parameters.

## **Conclusions**

During the implementation of this study, it was possible to establish that the basic concept of public e-procurement, the same attitude towards economic operators on the part of state authorities responsible for conducting such events should be considered, and this applies to absolutely all stages of the public e-procurement procedure without exception. It is also necessary to ensure full transparency of all actions performed within the framework of

public electronic procurement procedures. Compliance with the principle of procurement transparency is inextricably linked to the need to provide all parties involved in the process with full information about all actions performed.

All information about electronic public procurement presented in government information publications is also available via the Internet up to the date of the start of electronic bidding. It is necessary to reduce to the minimum possible values the deadlines that should be observed at certain stages of these procedures to provide all bidders, without exception, with sufficient time to develop proposals for participation in the auction. In addition, special professional and technical knowledge and skills are required to participate in the bidding itself. Among the main factors reducing the effectiveness of public procurement are political interference, opacity, corruption, lack of skills for implementing legislation and contract management, and lack of knowledge. Such a conclusion can be made based on an analysis of those factors that have a greater impact on the level of efficiency of public procurement in Kosovo. That is, raising awareness of the possible risks and consequences of illegal activities, ensuring continuous training of procurement department employees, introducing specific control methods, and implementing sanctions and other regulations aimed at combating illegal and corrupt activities. In general, achieving these goals requires strictly regulated procurement. This requires costs and sometimes slight success in preventing corruption. Incorporating sustainability principles into public e-procurement can enhance long-term economic efficiency, reduce environmental impact, and promote responsible resource management.

The prospects for further study within the framework of this subject are conditioned by the need to improve the processes of electronic public procurement as one of the varieties of information technologies to create optimal conditions for their effective implementation.

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# *Digitalisation in Central Asia and material/financial assistance of South Korea*

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## *Abstract*

This study's relevance stems from requisite state financial development strategy revision, particularly vis-à-vis tax system optimization. Research objectives entailed critically examining Kazakhstan's tax system deficiencies to identify enhancement trajectories, utilizing Polish and Croatian comparative frameworks. Methodologically, the investigation employed statistical analysis, analogical reasoning, generalization techniques, and formal legal-logical approaches. The authors posit that institutional tax structure formation correlates intrinsically with tax policy orientation and implementation. Efficacious tax systems demonstrably exhibit adaptive capacity amid fluctuating environmental determinants. Comparative legal analysis of Kazakhstani, Polish, and Croatian tax frameworks yielded potential enhancement vectors for Kazakhstan. The investigation incorporated scholarly conceptual frameworks on the subject matter. Research outcomes potentially contribute to methodological advancement in fiscal malfeasance detection.

*Keywords:* technological innovations, economic development, information transformations, international cooperation, project initiatives.

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## **1. Introduction**

Despite the growing role of digitalisation in the global economy, Central Asian countries face numerous challenges in implementing modern

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technologies due to underdeveloped infrastructure, low levels of digital literacy, and limited financial resources. Although various digital initiatives are being implemented in the region, the impact of these programmes on economic development remains poorly understood, including the role of international support, in particular South Korea's assistance, in this process.

For example, Ternov et al. (2024) analysed the impact of digital technologies on the development of financial inclusion in Kazakhstan, which contributes to improving access to financial services through online platforms and mobile applications, increasing the efficiency and convenience of financial transactions. In addition, Mukambaeva et al. (2023) focused on the digitalisation of Kyrgyzstan's educational system, emphasising the importance of introducing information and communication technologies to improve the quality of education, and also stressed the need to create new platforms for cooperation between the state, the private sector, and the population, which will contribute to improving digital literacy and provide new employment opportunities, supporting the socio-economic development of the country. In turn, Mukimova et al. (2022) examined the impact of digitalisation on the energy sector of Tajikistan, in particular, the introduction of smart energy accounting systems, and noted that digitalisation contributes to improving the efficiency and viability of energy companies.

Khamzaeva et al. (2020) analysed the digital strategies of Central Asian countries, including the priorities and penetration rate of electronic services. Despite some progress in the sustainable development of digital technologies, she stressed the need to increase funding and overcome regional barriers to improving infrastructure. Niyazbekova et al. (2023) evaluated the digitalisation policies of Central Asian countries, identifying key limitations and potential areas of development in the field of digital technologies and artificial intelligence. Moreover, Arifianti and Sakapurnama (2024) analysed the digitalisation of public services in Indonesia and compared it with the experience of South Korea, highlighting the importance of integrated digital solutions for improving the efficiency of public services and equal access to digital technologies, which is key to economic growth. Thus, previous studies have considered various aspects of digitalisation in Central Asia, but have not focused on a comprehensive analysis of its impact on the sustainable economic development of countries in the region in the context of economic support for South Korea, so this was chosen as the goal of this study.

## 2. Materials and Methods

In the context of Kazakhstan's analysis, attention was focused on the "Digital Kazakhstan" programme, which is an example of successful digitalisation in the region (Ministry of Digital..., 2020). The main areas of the programme were investigated and key components were considered, special attention was paid to the transfer of public services to an online format. The key areas of cooperation were outlined and how Kazakh universities implement experience exchange programmes with Korean educational institutions were investigated.

The strategy "Digital Uzbekistan 2030" was considered, which is aimed at turning the country into a digital leader of the region (Decree of the..., 2020). The study analysed the main objectives of the programme and considered Uzbekistan's cooperation with South Korea. The importance of training qualified personnel for the successful implementation of digital initiatives in the country was emphasised, and the training programmes of the Uzbek delegation organised with the support of the Korea Association of Technoparks and the Korea International Cooperation Agency, which contributed to the implementation of Technopark models in Uzbekistan, were noted.

Attention was focused on initiatives that support the improvement of digital literacy and the development of technological opportunities, in particular, projects aimed at distance learning and e-commerce. The key initiative Digital Kyrgyzstan 2019-2023 (2019) was studied. The paper also analysed the cooperation between Kyrgyzstan and South Korea, which began with the initiative of Korea Minting, Security Printing & Identity Card Operating Corp, which upgraded the system of passports and electronic identification cards, and also considered the impact of this project on improving administrative services and improving the standard of living of the population (Bekmuratov et al., 2024). Special attention was paid to the Concept of Digital Economy Development in Turkmenistan for 2019-2025 (2019). In addition, Turkmenistan's interaction with international organisations such as the United Nations (UN) and the EU, which provide support for the development of the digital economy, was investigated. Attention was also focused on Turkmenistan's cooperation with South Korea. The section on Tajikistan examined important steps that the country is taking to modernise its digital infrastructure, including the National Development Strategy 2030 (UNCTAD customs automation..., 2022).

### 3. Results

#### 3.1. Digitalisation in Central Asia and its impact on economic development

Kazakhstan demonstrates some of the highest rates of digital development in the region thanks to its state programme “Digital Kazakhstan” (Ministry of Digital..., 2024). The programme focuses on two key areas: modernisation of traditional sectors of the economy and creation of an innovative digital infrastructure, including the development of human capital and the introduction of new technologies to increase productivity (Figure 1). Furthermore, it aims to provide 300,000 job opportunities, establishing Kazakhstan as a competitive entity in the global digital economy while promoting sustainable technological advancement.

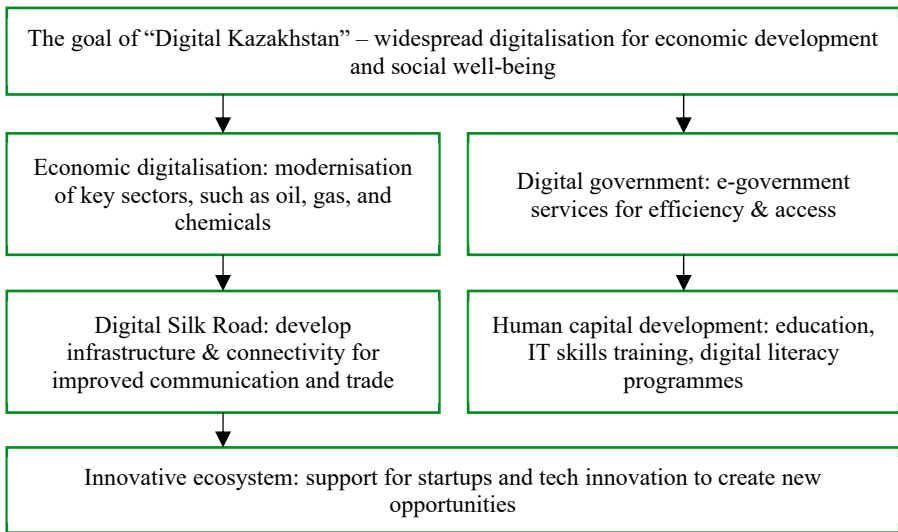


Figure 1 – “Digital Kazakhstan” programme

In turn, Uzbekistan is actively moving towards digitalisation, trying to adapt modern technologies to various spheres of the economy and public administration. The main focus is on modernising infrastructure, increasing internet access, and developing electronic services for citizens and businesses. One of the key initiatives is the Strategy “Digital Uzbekistan 2030”, which aims to turn the country into a digital leader in the region (Decree of the..., 2020) (Figure 2).

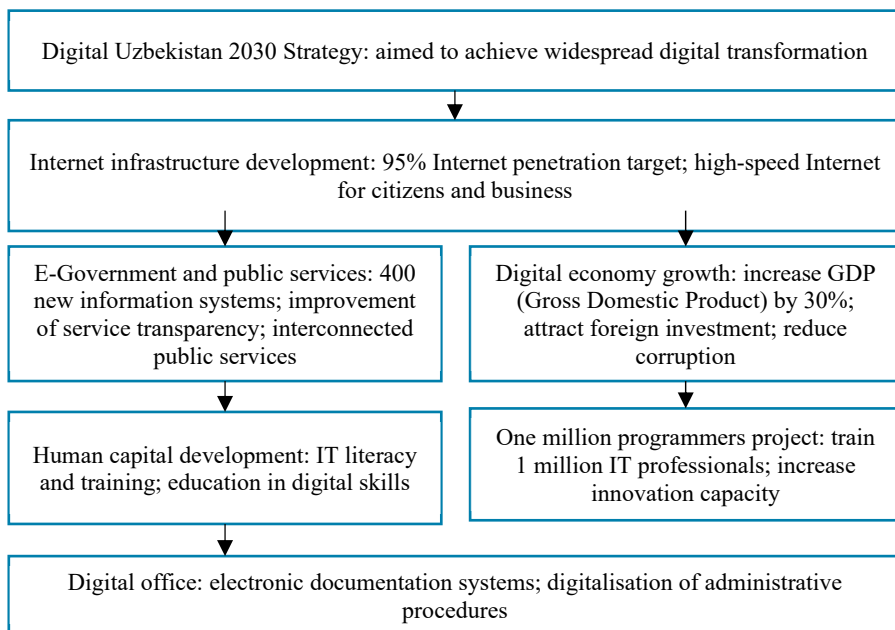


Figure 2 – “Digital Uzbekistan 2030” strategy

Kyrgyzstan is advancing in sustainable digital transformation by emphasizing digital literacy and technology-driven economic growth, despite its financial difficulties and limited infrastructure. One of the key projects was the Digital Kyrgyzstan 2019-2023 (2019) initiative, which aims to simplify citizens' access to public services through the introduction of digital technologies and management systems (Figure 3).

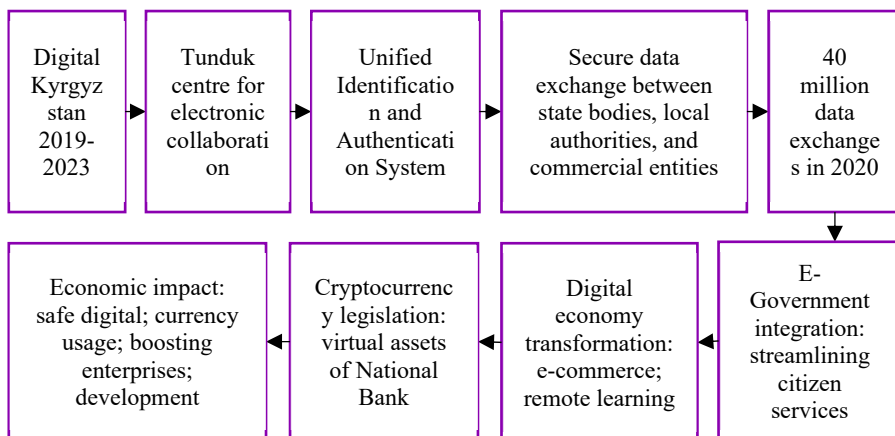


Figure 3 – Digital Kyrgyzstan 2019-2023 project

The government of Turkmenistan has launched large-scale initiatives to develop the digital economy, which include both improving infrastructure and introducing modern digital services for citizens. An important initiative is the concept of digital economy development for 2019-2025 (Figure 4).

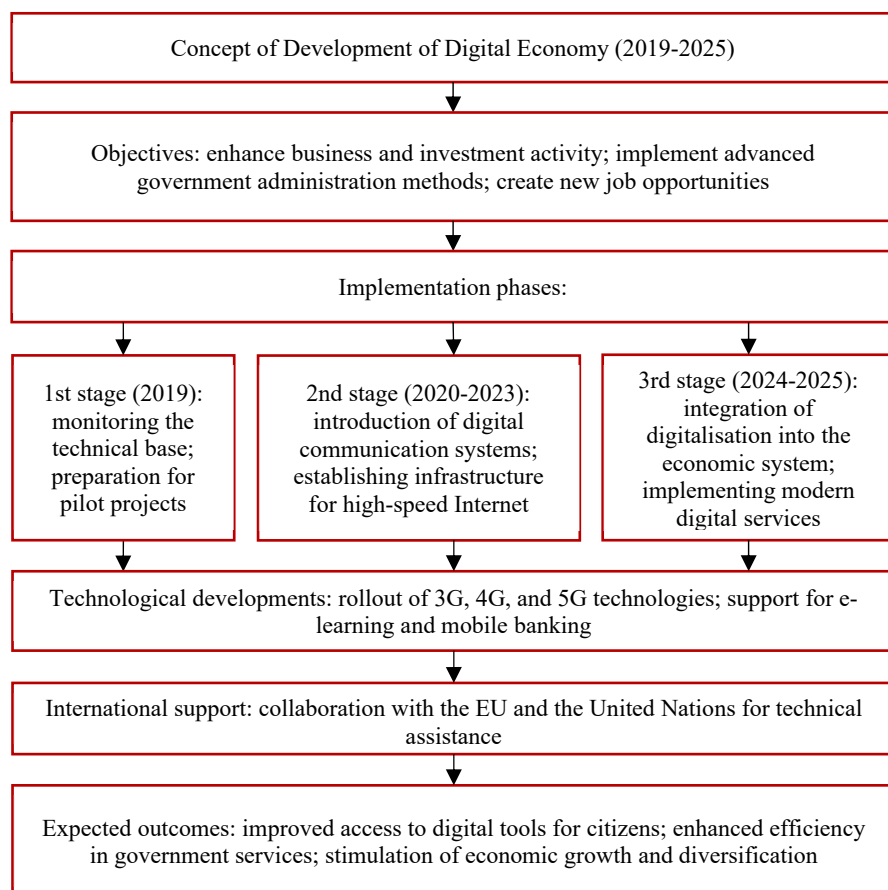


Figure 4 – Digital economy development concept for 2019-2025 in Turkmenistan

An important step for Tajikistan is the “National Development Strategy 2030”, which provides for an integrated approach to digital transformation, and the introduction of an electronic customs management system developed with the support of the UN Conference on trade and development and the World Bank. The strategy focuses on creating a digital environment to support innovation and develop a skilled IT workforce (Figure 5).



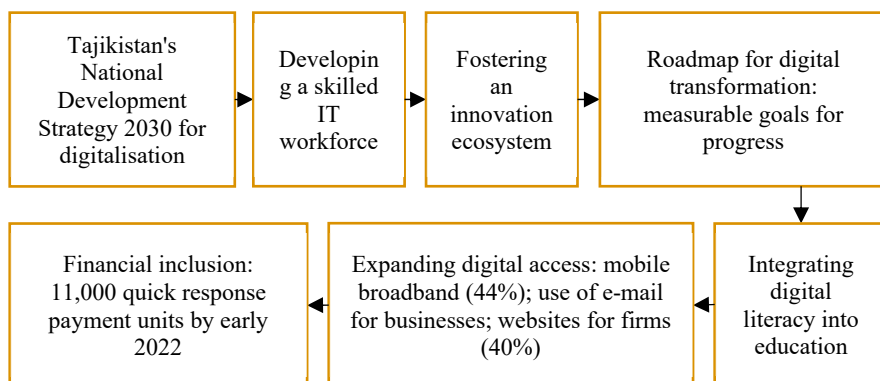


Figure 5 – National Development Strategy 2030 in Tajikistan

Kazakhstan is a leader in the introduction of digital technologies, while Uzbekistan, Kyrgyzstan, Turkmenistan, and Tajikistan are gradually taking important steps in modernising their economies. All of these countries focus on developing digital infrastructure, improving public administration efficiency, and stimulating innovation (Table 1).

Table 1 – Comparison of digitalisation in Central Asian countries

Country	Key digitalisation initiatives	Main areas	Challenges
Kazakhstan	“Digital Kazakhstan”	Modernisation of the economy, digitalisation of public services, development of infrastructure through the “Digital Silk Road”, improvement of human capital, creation of an innovative ecosystem	Integration into global markets, the need to improve digital literacy in rural areas
Uzbekistan	“Digital Uzbekistan 2030”	95% Internet penetration, development of e-government, training of 1 million IT specialists, improvement of the business climate	High level of bureaucracy, insufficient digital infrastructure in some regions
Kyrgyzstan	Digital Kyrgyzstan 2019-2023	Promotion of the development of e-government, digitalisation of public services, introduction of a unified identification and authentication system, regulation of digital currency	Low Internet penetration, weak infrastructure, economic difficulties
Turkmenistan	Digital economy development concept for 2019-2025	Introduction of 3G, 4G, 5G technologies, integration of digital communication systems, improvement of infrastructure for mobile banking and electronic services	The slowest Internet connection in the region, limited access to digital tools for the population

Tajikistan	National Development Strategy 2030	Development of Internet infrastructure, integration of digital technologies into public administration, promotion of innovation and introduction of quick response payments, expansion of internet access in rural regions	The high cost of digital communication, poor quality of infrastructure, and the need to improve digital literacy
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### ***3.2. The role of South Korea’s economic assistance in digitalising Central Asia***

Focusing on improving digital competence among the population and supporting industrialisation, the South Korean government has developed a multi-level approach to creating a “Digital Korea” (Korea to come..., 2023). This strategy covers short-, medium-, and long-term plans, ensuring sustainable infrastructure development and cutting-edge technology implementation across key sectors (Figure 6). An important element of the strategy is to ensure digital literacy of all age groups, which allows citizens to take advantage of the new opportunities provided by the digital economy. The main objectives of the strategy are to improve the internet infrastructure to meet new technological requirements, provide digital education for all citizens, develop influence on virtual platforms, and create an export-oriented group to strengthen the country’s global presence in technology sectors.

South Korea plays an important role in supporting Kazakhstan's digitalisation by promoting key aspects of digital infrastructure and innovation. Their cooperation began at the official level in 2017, when they discussed plans to integrate Korean experience into the concept of “Digital Kazakhstan” and develop public-private partnerships to support these initiatives (Ministry of Digital..., 2024). To implement this concept, the government of Kazakhstan has invested approximately USD 80 million, which has created 120 thousand jobs. It was also planned to invest another USD 150 million in the development of the digital ecosystem to increase the level of Internet use to 97%.

South Korea not only provides technological assistance, but also promotes the training of specialists in the field of IT. Kazakhstan, in particular, actively participates in the experience exchange programme with Korean universities and educational centres. The government of Kazakhstan actively cooperates with Korean experts in the framework of the project of digitalisation of public services. South Korea and Kazakhstan have concluded dozens of agreements, memoranda of cooperation and commercial contracts worth more than USD 430 million (President Yoon Suk..., 2024) (Figure 7).

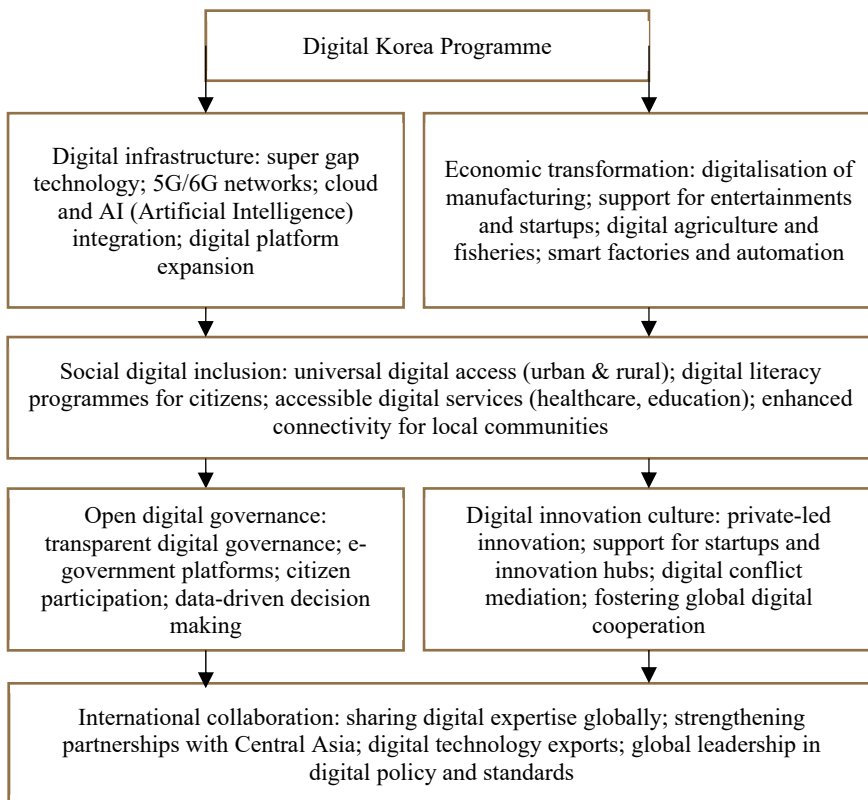


Figure 6 – Digital Korea Programme

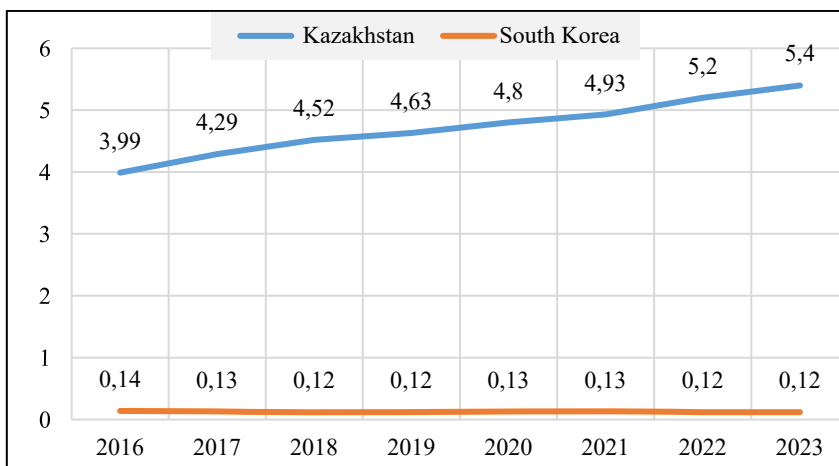


Figure 7 – South Korea and Kazakhstan's spending on science, technology, and innovation in 2016-2023, gross domestic expenditure on research and development as a percentage of gross domestic product

South Korea began its cooperation with Uzbekistan in the field of digitalisation in 2014, when the Inha University campus was opened in Tashkent, which trains specialists in the field of Computer Science and IT. In 2023, with the support of the Korea Association of technoparks and the Korea International Cooperation Agency, a programme was organised to improve the skills of the Uzbek delegation in the process of digitalisation in Korea (Uzbekistan strengthens IT..., 2023). At the initiative of the leaders of the two countries, Korea International Cooperation Agency provided USD 4.5 million for the development of an IT park in Uzbekistan (South Korean KOICA..., 2022). In 2023, the volume of bilateral trade between Uzbekistan and Korea reached USD 2.5 billion, and Korean investment exceeded USD 7.5 billion (South Korea hopes..., 2024).

In general, Uzbekistan’s budget in the technology sector in 2020 was approximately USD 56 million (World Bank, 2023). In 2021, it increased to USD 89 million, reflecting the continued implementation of strategic initiatives. Then, in 2022, Uzbekistan received approximately USD 100 million for further digitalisation, including investment in infrastructure and e-services development. In 2023, the budget for digitalisation reached almost USD 120 million, focusing on improving e-government services and developing the digital economy (Figure 8).

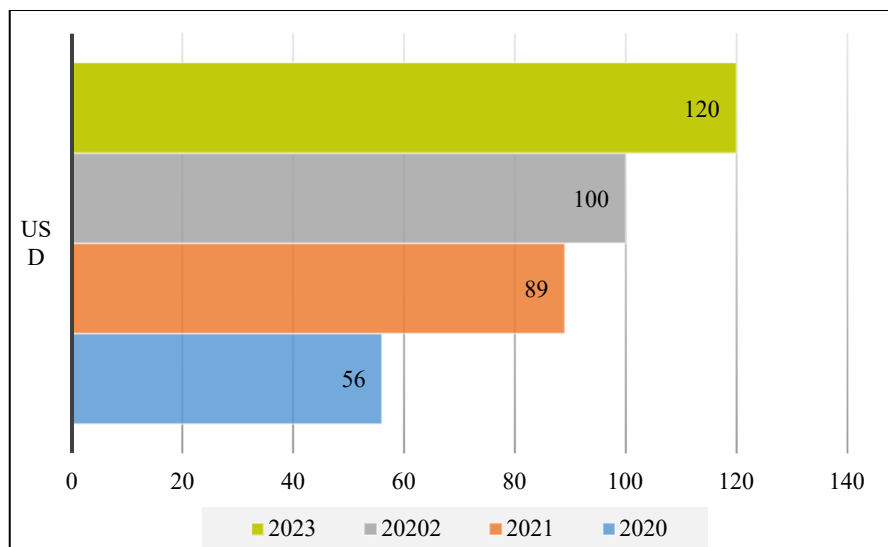


Figure 8 – South Korea’s monetary assistance to Uzbekistan in 2020-2023

Additionally, in 2024, the Korean group Hancom signed an agreement on the development of digital education in Uzbekistan, implementing a pilot

project using classrooms in digital technology training centres, where classes on artificial intelligence, application development, Korean and English are taught, including improvement of the skills of Uzbek IT mentors (Hancom Group to..., 2024). Kyrgyzstan's collaboration with South Korea in digitalization commenced in 2016 under the idea of the Korea Minting, Security Printing & Identity Card Operating Corp to modernize the passport and electronic identity card system (Bekmuratov et al., 2024). Korea Minting, Security Printing & Identity Card Operating Corp executed a project to distribute three million electronic identity cards in Kyrgyzstan, facilitated the establishment of a resident registration system, and launched mobile identification cards. A collaboration between prominent South Korean firms BC Card and Smartro resulted in the creation of BC Card Kyrgyzstan, enabling innovative payment technologies such as SoftPOS (Point of Sale) terminals and rapid response systems. Moreover, during the “Digital Resilience Technical Assistance Programme” (2020-2022), Kyrgyzstan received a grant of USD 2 million from the Korea-World Bank Partnership (World Bank, 2020) (Figure 9).

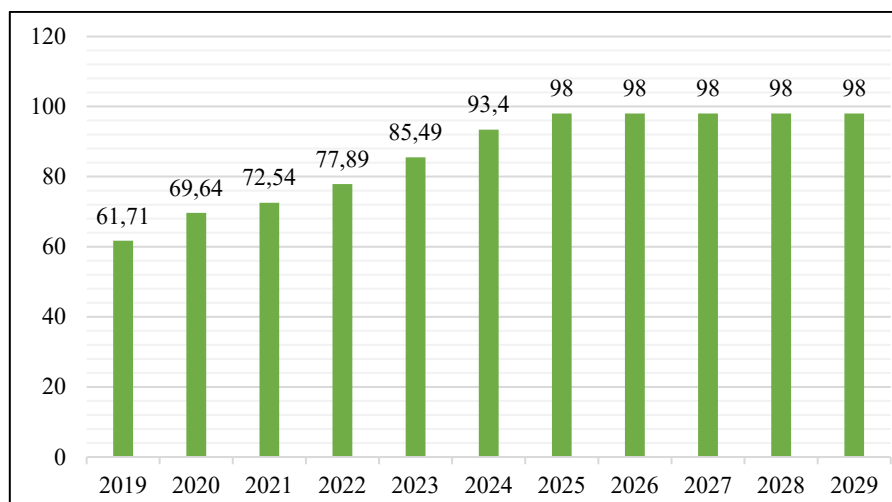


Figure 9 – Internet penetration rate in Kyrgyzstan for 2019-2024 and forecast for 2025-2029, %

Cooperation between Turkmenistan began with the visit of South Korean President Moon Jae-in in 2019, when issues beyond energy and economy were discussed, with a focus on strengthening Turkmenistan's telecommunications infrastructure (S. Korean President..., 2019). To implement this task, a memorandum of understanding was signed between

the relevant departments, which allowed Korean companies to start a project to modernise the telecommunications infrastructure in Turkmenistan. In 2023, Turkmenistan and the Korean company Hyosung Corporation signed an agreement on the modernisation of automated teller machines, the production of new software, and the development of banking infrastructure (Korean company helps..., 2023) (Figure 10).

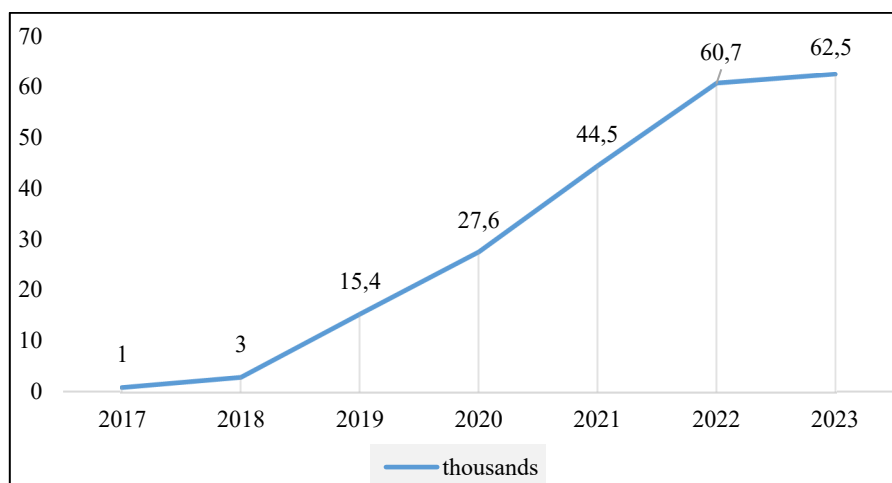


Figure 10 – Dynamic growth of mobile banking users in Turkmenistan in 2017-2023, thousands of users

Notably, Turkmenistan is an important partner for South Korea, because Korean companies, over the past decade (2014-2024), have joined numerous projects in Turkmenistan worth USD 4.99 billion (Min-hyung, 2024). This is the largest amount among South Korea’s main partners in Central Asia. One of the most significant projects is Digital CASA Tajikistan, which provides for the creation of a modern digital infrastructure in the country and support for the Smart City Dushanbe initiative (Min-hyung, 2024). This project worth USD 50 million was an important step towards Tajikistan's digital transformation, including through the country’s integration into regional digital networks, improving computer literacy among the population, and introducing e-government services.

In 2019, the Tajik-Korean Innotech Invest forum was held. At this event, representatives of 50 Korean companies discussed opportunities for cooperation in the fields of digitalisation and industrial development of Tajikistan. The forum became an important platform for strengthening economic ties between the two countries, and also contributed to the discussion of prospects for the introduction of 5G technologies in Tajikistan.

However, at other Tajik-Korean forums, it was noted that the volume of foreign trade between Tajikistan and South Korea in the first five months of 2019 reached USD 12.9 million, which is significantly more than USD 9.3 million for the same period of 2018 (Kerimkhulle et al., 2023). According to the digitalisation report in Tajikistan for 2020-2024, the number of internet users increased from 2.42 million in 2020 to 4.1 million in early 2023, social media users – from 0.66 million to 1.1 million, and the number of mobile connections remained stable at about 10 million (Figure 11).

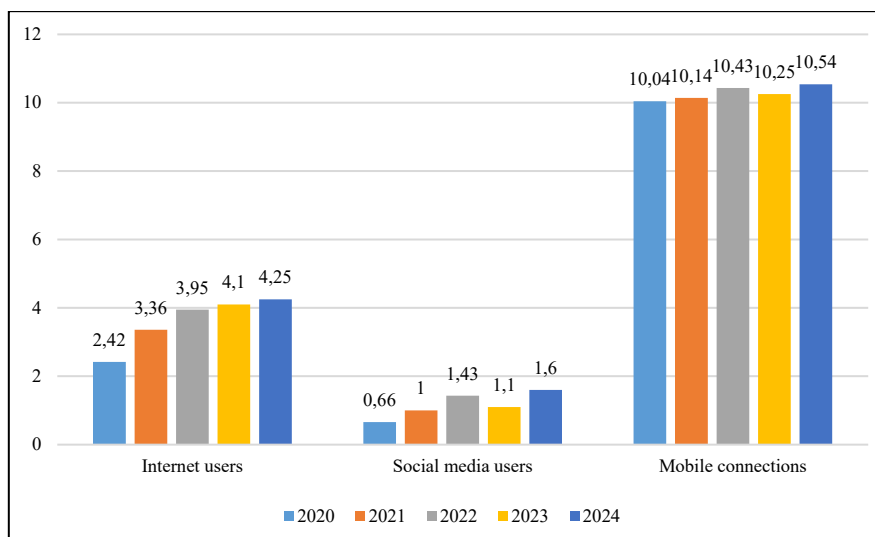


Figure 11 – Report on digitalisation in Tajikistan for 2020-2024, millions of users

Source: compiled by the authors based on Digital in Tajikistan (2024).

#### 4. Discussion

This study examines how Zaman (2022) advocates for government-driven digital economy initiatives, while identifying South Korea's comprehensive support as the decisive catalyst for Central Asian digital transformation and economic growth. The findings partially align with Makhazhanova et al. (2024) regarding digital finance's empowerment of small businesses during global challenges, though this research adopts a more holistic perspective on Central Asian digitalization with emphasis on South Korea's foundational contributions. The study confirms digitalization's role in enhancing Central Asian economic sustainability through improved infrastructure and digital service accessibility. While Park et al. (2023)

similarly recognized digitalization's economic importance, their focus remained on South Korean manufacturing processes, particularly supply chain traceability. This research extends their findings by highlighting the significance of public service digital initiatives for sustainable regional development, transcending Park's et al. more industrially-oriented context.

In academic discourse, South Korea's engagement with Central Asia, as explicated by Khamzin et al. (2022), denotes a significant paradigm for technological diffusion and digitalization facilitation within the region. Khamzin emphasized the establishment of socio-cultural and diplomatic relations as foundational elements upon which digital initiatives and economic assistance are predicated, thereby facilitating digital transformation across Central Asia. Hajiyev et al. (2025) empirically examined digitalization's influence on labor productivity throughout Asian economies, concluding that digital technologies substantially enhance workforce efficiency. However, the current investigation encompasses a more expansive analysis of digitalization's impact relative to Hajiyev et al.'s work, encompassing both economic development trajectories and societal transformations within Central Asian nations.

Khoda et al. (2024) research demonstrates South Korea's advanced technological capabilities in e-procurement innovation, confirming its instrumental role in facilitating digital transformation across various countries, including those in Central Asia. These findings align with our current analysis, highlighting the significance of comprehensive international support encompassing both financial assistance and transferable digital policies and innovations applicable to the Central Asian context. Quliyev's et al. (2024) investigation of digital economy development disparities among Muslim-majority nations corroborates our findings regarding digitalization's positive economic impact. However, the present study provides enhanced insight into these mechanisms through detailed examination of specific digitalization programs implemented across the region. While Quliyev's conclusions generally correspond with our findings, notable distinctions exist: our research identifies socioeconomic and infrastructural challenges as primary factors influencing digital progress in Central Asia, whereas Quliyev primarily attributes variations to differing levels of economic development.

While Tleubayev et al. (2024) emphasize the significance of macroeconomic variables and governance frameworks for digital transformation in the Asia-Pacific region, particularly through enabling policies, our investigation partially corroborates these findings. Our research confirms digitalization's developmental importance, albeit with specific reference to South Korean intervention mechanisms. Basnayake et al. (2024)



similarly demonstrate the positive correlation between digital technology adoption and economic advancement across Asia-Pacific, with particular emphasis on financial inclusion benefits. In contrast to Basnayake et al.'s focus on financial inclusion, our research expands the analytical framework to encompass broader dimensions of digitalization – including public service enhancement and digital technology accessibility – thus contributing to a more holistic understanding of digital technologies' impact on economic development trajectories.

Kolbayev et al. (2024) establish digital transformation as a critical catalyst for inclusive and sustainable development paradigms, with particular emphasis on digital access disparities and digital divide mitigation strategies. Their research provides complementary validation of technology accessibility as a determinant factor, yet fails to address specific international support vectors – financial assistance programs, infrastructure investment initiatives, technical capacity building, and international organizational partnerships – which significantly influence digitalization efficacy in Central Asian economies. Bisenovna et al. (2024) highlights that digitalisation has a positive impact on the social processes of Asian countries, in particular, on increasing the participation of citizens in political life and access to information. However, sustainable economic development through digitalisation is broader than the aspect of public diplomacy discussed by K. Bisenovna, emphasising the importance of not only the social, but also the economic benefits of digitalisation.

Alishli et al. (2024) examined South Korea's collaboration with Kazakhstan and Uzbekistan in several industries, including energy, infrastructure, and education. This study concentrates on economic support for digital transformation, highlighting the significance of contemporary technology in fostering sustainable growth, despite conventional industries attracting greater investment than digitalization. In addition, this paper complements the study by Turemuratov et al. (2024), which focused on the impact of digital initiatives on the economic development of Central Asian countries through the promotion of trade and international cooperation, since in both studies digital initiatives were considered as a key factor in stimulating economic growth and integrating the region into the world economy. However, A. Lis et al. (2024) investigated the impact of digitalisation on productivity and competitiveness, which is an important aspect for the analysis in this study.

## Conclusions

Digitalisation is a key factor influencing the economic development of

Central Asian countries. It significantly improves productivity in various sectors, promotes the modernisation of public administration, improves access to electronic services and encourages the creation of new jobs. South Korea plays an important role in this process, providing financial and technical support aimed at developing digital infrastructure and educational programmes to improve digital literacy of the population. Digital projects supported by South Korea have a long-term impact on human capital development through training initiatives and technology grants, helping to increase the level of competence among young people and professionals. However, uneven access to high-quality data on digitalisation processes and the lack of a unified approach to measuring its results in the region makes it difficult to conduct an accurate analysis of the impact of digital technologies on the economy, and complicates the comparison of their effectiveness across countries and sectors. On the other hand, the study mainly focused on macroeconomic indicators, so its results do not fully cover the micro-level impact of digitalisation on individual enterprises and social groups. Based on the results obtained, it is advisable to continue studying the impact of digitalisation on small and medium-sized enterprises, since they are the driving force behind economic growth and job creation in the region.

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# *Indicators for assessing sustainable development goals in education and their monitoring in Kazakhstan*

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## *Abstract*

Within the framework of the concept and goals of sustainable development, significant attention is paid to education for sustainable development. However, due to the diversity of national education systems, both in structure and in the content of educational programs, it is difficult to correctly compare the achievements of different countries and monitor their progress in achieving sustainable development goals at the national and international levels without appropriate comparison. In this article, the authors analyzed the leading national models of education, which are the most “mature” and developed, with an emphasis on sustainable development. The authors pay special attention to the education system of Kazakhstan, its features in comparison with these models, as well as consideration of initiatives aimed at achieving sustainable development goals in education, which are integrated into national projects and other strategic and program documents of Kazakhstan.

*Keywords:* education for sustainable development, sustainable development, education systems, classification of education systems.

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## **Introduction**

The principles of sustainable development have received international recognition thanks to decisions of the United Nations. Their formation was

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based on the most important documents that became the foundation of the modern global agenda until 2030. Such documents include the UN Stockholm Declaration on the environment, the report of the World Commission on Environment and Development entitled “Our Common Future”, the Rio Declaration and Agenda 21, the Program of Action for the further implementation of this agenda, the UN Millennium Declaration, the Johannesburg Declaration, and the “The Future We Want” resolution.

In 2015, the UN General Assembly approved the resolution “Transforming our world: the 2030 Agenda for Sustainable Development.” As part of this resolution, 17 sustainable development goals and 169 related targets were identified. These goals are comprehensive and indivisible, which allows for the integration of economic, social and environmental aspects of sustainable development. In particular, paragraph 25 of the 2030 Agenda emphasizes the importance of ensuring quality, inclusive and equitable education at all levels, from pre-school to higher and technical, including vocational training. Goal 4 focuses on achieving inclusive, equitable and quality education, and creating lifelong learning opportunities for all people.

In 2015, the UN established the Inter-Agency and Expert Group on Indicators for Sustainable Development Goals (IAEG-SDGs), which included representatives of 28 national statistical offices [1, 2, 4, 7].

The main objectives of this international expert group include:

- Development of a global system of indicators;
- Providing technical support;
- Regular review of methodological developments, indicators and their metadata;
- Analysis of capacity building activities.

The UN identifies several levels for spatial analysis: global (humanity), regional (geographical region), subregional (part of the states in the region), national (state) and subnational (territory within a state that does not have international status).

In 2017, a system of global indicators was approved to assess the achievement of the goals and objectives of sustainable development enshrined in the 2030 Agenda for the period up to 2030. This system was developed by IAEG-SDGs and approved by the UN Statistical Commission.

It was also decided that the original set of global indicators would undergo annual adjustments and comprehensive reviews in 2020 and 2025. This process aims to complement indicators developed at regional and national levels by UN Member States to more accurately and accurately monitor progress towards achieving the Sustainable Development Goals.



General requirements for indicators related to sustainable development goals were established. To simplify the implementation of global indicators, a classification has been developed that includes three levels depending on the degree of methodological development and availability of data at the global level [8, 9]:

- I level: The indicator has a clear conceptual definition, is supported by international methodologies and standards, and data is collected regularly in at least 50% of countries and regions for which the indicator is relevant.
- Level II: The indicator also has a clear conceptual definition and international methodologies and standards, but data is not routinely collected at the global level.
- Level III: There is no internationally accepted methodology or standards for the indicator yet, but they are in the process of being developed or will be developed and tested.

Measuring and monitoring indicators related to education for sustainable development are critical to understanding progress towards educational goals. These indicators measure access, quality and equity in education, which are fundamental to sustainable development at the global level. Global education-related indicators are complemented by national and regional indicators adapted to local conditions.

Education for sustainable development plays a key role in achieving all sustainable development goals, as it contributes to the knowledge, skills and values needed to address global challenges. However, due to differences in educational systems across countries, including funding levels, pedagogical approaches and curriculum content, it is clear that there is no one-size-fits-all approach to implementing sustainable development goals in education.

Using the example of Kazakhstan, several important aspects can be highlighted that may be useful for other countries when adapting their educational systems to achieve sustainable development goals:

1. Integrating sustainable development principles into educational programs. Kazakhstan is actively working to include sustainable development topics in national educational standards. This helps students understand the importance of environmental, social and economic sustainability from an early age.
2. Support and development of teachers. Successful integration of sustainable development goals into education requires training educators who have the necessary knowledge and skills to teach these topics. Kazakhstan is developing professional development programs for teachers so that they can effectively introduce the principles of sustainable development into the educational process.

3. National initiatives and projects. National projects are being implemented in Kazakhstan, such as “Green Economy” and “Digital Kazakhstan”, which are aimed at sustainable development and have an educational component. These initiatives help raise awareness and involvement of young people in sustainable development issues.
4. Monitoring and evaluation. Continuous monitoring and evaluation of educational programs is important to ensure progress towards achieving sustainable development goals. Kazakhstan has developed mechanisms for assessing the effectiveness of implementing the principles of sustainable development in education, which allows timely adjustment of strategic directions.

The example of Kazakhstan demonstrates that the integration of the principles of sustainable development into the educational system requires an integrated approach, including both the adaptation of educational programs and the training of teachers and the development of national initiatives. To successfully achieve sustainable development goals, it is important to take into account the national characteristics of each country and develop strategies that correspond to these characteristics. Comparative analysis of education models focused on sustainable development allows us to identify best practices and adapt them to local conditions, which contributes to global progress in implementing the 2030 Agenda.

## **Methodology**

The purpose of this study is to analyze and comparatively study various educational models existing in the world, with an emphasis on European, American and Asian models. The study is aimed at identifying the key features of each model and their impact on the formation of graduates, their worldview, life goals and readiness to participate in modern society.

Research objectives:

- 1) Compare the main educational models using the example of Kazakhstan, the USA, Great Britain, Germany, France, China and Japan.
- 2) Analyze the features of each model in terms of its orientation towards the exact sciences or humanities, emphasis on theoretical or practical training, and preference for detailed study of existing or creation of new ones.
- 3) Investigate the influence of educational models on the training of specialists for various sectors of the economy.

- 4) Use the International Standard Classification of Education (ISCED) to compare and analyze the educational achievements of Kazakhstan in comparison with other countries studied.

The study was conducted in the form of a comparative analysis using qualitative and quantitative methods.

An in-depth analysis of existing literature on the topic of educational models was conducted, including scientific articles, UNESCO reports, government documents, and other relevant sources.

To systematize the results of the study, the International Standard Classification of Education (ISCED) was used.

The study examined cases of specific educational institutions and educational programs that reflect the features of each of the models.

## Result

Kazakhstan's development goals directly resonate with the Sustainable Development Goals, including the goals of preserving the population, improving the health and well-being of people, as well as ensuring decent work and successful entrepreneurship.

Currently, measures aimed at achieving the SDGs in Kazakhstan are integrated into 10 national projects and strategic documents, such as the "Kazakhstan-2050" Strategy, the National Plan - 100 specific steps to implement five institutional reforms, "Quality Education "Educated Nation", "Technological breakthrough through digitalization, science and innovation", "Sustainable economic growth aimed at improving the well-being of Kazakhstanis", "Green Kazakhstan", national project for the development of the agro-industrial complex, "Concept of environmental safety of the Republic of Kazakhstan for 2021-2030", "State program for the development of education for 2020-2025" and "National plan for the implementation of the concept of "Digital Kazakhstan".

These documents cover more than 80% of the objectives identified in the UN document and contain specific action plans to achieve the corresponding goals. Strong alignment of existing national priorities and policies with sustainable development goals suggests that effective monitoring in this area will contribute to the achievement of national and global policy goals.

The Bureau of National Statistics ASPR RK, together with members of 5 Interdepartmental Working Groups created within the Coordination Council on the Sustainable Development Goals, reviewed 278 global and national SDG indicators, of which 16 global indicators were recognized as irrelevant for Kazakhstan.

Today, the system of national indicators for monitoring the SDGs in Kazakhstan includes 262 indicators:

- 146 global indicators were adopted without changes;
- 44 global indicators include minor changes;
- 30 alternative/proxy indicators were proposed;
- 42 national indicators are additionally included.

The Bureau of National Statistics ASPR RK has also developed a national SDG reporting platform.

In Kazakhstan, a key role in monitoring and implementing sustainable development goals is played by such departments as the Ministry of National Economy, the Ministry of Ecology, Geology and Natural Resources, the Ministry of Labor and Social Protection of the Population, and the Bureau of National Statistics of the Republic of Kazakhstan. These departments, together with the expert community, developed and implemented coordination and monitoring mechanisms, including interdepartmental working groups and specialized committees.

In 2021, Kazakhstan introduced a national SDG monitoring system, which includes more than 230 indicators adapted for Kazakhstani conditions. Under this system, the Ministry of National Economy publishes quarterly progress reports on key indicators such as poverty reduction, improved access to quality education, and expansion of infrastructure in rural areas.

Kazakhstan is also actively participating in international data sharing initiatives. In 2019, the digital analytical platform SDMX (Statistical Data and Metadata eXchange) was developed and implemented, which allowed Kazakhstan to integrate its statistical data with global databases. The platform includes about 120 key SDG indicators, available for analysis and reporting at the international level. The Office for National Statistics is coordinating work with the Department for Digital, Innovation and Aerospace to update and support the platform.

As of 2023, Kazakhstan has made significant progress in education, increasing the enrollment of preschool children to 90%, as well as ensuring full access to secondary education for 99% of schoolchildren. In the area of environment and sustainable development, the country has reduced carbon dioxide emissions by 12% compared to 2015 levels, as reflected in national reporting on the implementation of the Paris Agreement.

Another challenge is the lack of planned statistics on 88 indicators in a number of countries (second-level indicators) and the lack of a global methodology for calculating data on 34 indicators (third-level indicators).

Significant progress has been made at the global level in developing and testing new methodologies with the participation of international organizations and other stakeholders. In this context, the important role of

national statistical authorities is emphasized. The Bureau of Statistics of the Republic of Kazakhstan has already taken a number of steps and has accumulated significant experience that can be useful for global efforts. These measures include: (a) pilot studies on gender issues and violence against women and children; (b) incorporating the recommendations of the Washington Group on Disability into the census questionnaire.

Thus, Kazakhstan demonstrates significant commitment to achieving sustainable development goals by actively implementing international standards, developing its own initiatives and regularly monitoring and assessing progress.

Sustainable development plays a key role in education, since without it the transition to sustainable development is impossible.

The concept of “Education for Sustainable Development” (ESD) was formed as a reaction to the recognition of the global crisis in human interaction with the environment. The basic principles of ESD include:

- Formation of goals and vision of a better future.
- Critical thinking and evaluation of generally accepted ideas.
- Systems thinking and finding synergistic connections.
- Establishing partnerships and ability to work in a team.
- Decision making and delegation of authority.

The term “Education for Sustainable Development” is considered by the UN as an approach that includes:

- Acquiring skills and knowledge for sustainable development.
- Learning at all levels and in all areas of society.
- Formation of socially responsible citizens.
- Continuous education throughout life.
- Harmonious development of personality.

The main objectives of UNESCO and its members in the field of ESD include:

1. Improving the quality of basic education.
2. Reorientation of curricula.
3. Raising public awareness.
4. Training of specialists.

ESD covers planning, policy development, program implementation and teaching. In theory, ESD is divided into two approaches: teaching the concepts of sustainable development and developing the skills to achieve it, including systems and critical thinking, establishing partnerships and participating in decision-making.

A key element in the successful implementation of the ESD concept is the training of teachers, since they bear the main responsibility for shaping the worldview of the new generation. Teachers must address four main goals:

helping students understand the importance of the Sustainable Development Goals, engaging them in discussions about these issues, teaching them to consider contemporary issues in a multifaceted way, and encouraging discussion of these topics outside of formal education [21].

There is no universal model of education for sustainable development; Each country must define its priorities and action programs. Particular attention should be paid to training people who already have a diploma. Educational programs that can teach SD skills and inform about the latest trends in this field are important.

To encourage the implementation of sustainable development programs, global and national rankings of educational institutions are being developed. In 2019, the British publication Times Higher Education presented a global ranking of universities assessing their contribution to achieving the SDGs [4, 19, 20].

The ranking methodology is based on an analysis of three areas of university activity: research (creating knowledge to solve world problems), socially oriented programs (impact on society) and management (resource management and contribution to education).

The calculations use data provided by universities, as well as bibliometric data from Elsevier, in particular:

- research – publications related to the achievement of the specified SDG for a certain period are analyzed;
- “continuous” indicators – numerical indicators that vary over a wide range (for example, the number of university graduates in the field of health);
- indicators requiring confirmation - quality indicators, such as initiatives, practices and activities of universities in various areas, which require confirmation and are assessed based on certain criteria.

The final overall ranking score is calculated by combining the score for SDG 17 and the top three scores for the other SDGs. The score weight for SDG 17 is 22%, and the weight for each of the remaining three SDGs is 26%. In the ranking, universities can be assessed according to various SDGs depending on the priorities of their development strategy.

*Education within the framework of sustainable development: systems analysis.*

The existing “classical” educational models can be conditionally divided into European and American, although in recent decades the Asian model of education has been actively introduced into world practice. Each of these models has its own characteristics and corresponds to certain conditions for the development of society. Features mean, first of all, an orientation towards the exact sciences or humanities, an emphasis on theoretical or practical

training, as well as a preference for a detailed study of existing things or the creation of new ones. The use of one or another educational model leads to the formation of graduates in various educational institutions with different worldviews, goals and degrees of readiness to live and create in modern society [10, 11, 12].

### *American model of education*

The modern education system in the United States, formed under the influence of historical, economic and social factors, is characterized by a number of features that distinguish it from Western European standards.

The education system is a multi-level structure based on age and includes 4 levels: preschool, primary school, secondary school and higher specialized vocational education. Preschool education is divided into two stages: nursery and kindergarten.

School education includes two levels: primary and secondary. Primary school education covers the first stage, primary school and primary elementary school. Secondary school education in the United States is divided into two stages – junior and senior school, each of which covers three years of study.

School education in general includes 12 academic classes from first to twelfth, each of which lasts 1 academic year.

Secondary schools can be of different types: academic, vocational and multidisciplinary. In multidisciplinary schools, starting from grade 9, various areas of study (profiles) are offered. The most common areas are academic, general, commercial, industrial and agricultural. There are many school programs in the United States, but there is no uniform curriculum as each state has its own autonomy.

Higher education in the USA can be obtained at colleges, universities and academies. Graduates are awarded bachelor's and master's degrees and doctors.

Modular training had a number of positive effects. Firstly, it increased students' independence in studying the subject. Secondly, the role of the teacher shifted from lecturing to consulting, which gave students the opportunity to actively discuss the material. Thirdly, the intermediate control system made it possible to assess the assimilation of the material after each module. Fourthly, step-by-step study of the modules made it easier to master the entire course.

This system became widespread in American educational institutions and was subsequently adopted in Western European universities and colleges.

European model of education [3, 5, 3, 14, 15, 16, 17]. The UK education system is divided into three subsystems: 1) England and Wales, 2) Northern Ireland, 3) Scotland. The education systems of England, Wales and Northern Ireland have a similar structure, while the Scottish system has its own unique traditions. The modern UK educational system includes early childhood education, primary and secondary education, further education and higher education.

The central authority for education in England is the Department of Education and Research, which develops the overall strategy for the development of education at all levels and influences educational institutions, including universities, through financial transactions. However, the department does not directly control the activities of educational institutions – this task is entrusted to the Royal Inspectorate and local education authorities. The Royal Inspectorate exercises general supervision over all types of education except university education, although the possibility of including universities under its area of responsibility is being discussed.

Control over schools and further education institutions is carried out by local education authorities. In England, the public sector dominates the education system. The process of “nationalization” began here later than in other Western European countries. Over the past decades, state influence on education has increased significantly due to the need to finance it: the state now covers 80% of operating and 90% of capital expenses of universities.

The UK Department for Education sets national standards, makes recommendations, inspects educational institutions and subsidizes up to 60% of school budgets. Moreover, each school independently determines its curriculum, based on the recommendations of the Ministry.

The Education Reform Act of 1988 significantly changed the entire education system.

Major reforms included:

- Introduction of a state curriculum with a compulsory set of subjects and courses for all schools.
- Transformation of the Standard Assessment Tests (SATs) system into the National Curriculum Assessment, with four-threshold exams at ages 7, 11, 14 and 16. An assessment at the 4th threshold (16 years) corresponds to the GCSE examination.
- Introduction of the League tables information subsystem, presenting school performance indicators. These data are regularly published in newspapers and updated on the government website.
- Developing a funding formula whereby schools with larger numbers of students receive more funding.



- Reinstate Open Enrolment, giving parents the ability to choose schools and control the enrollment process.

In Germany, the regulations governing the education system are the Higher Education Act (das Hochschulrahmengesetz) and the Federal Education Act (das Bundesausbildungsgesetz), they regulate educational policy in Germany. Education management is the responsibility of the state governments, but overall coordination is carried out at the federal level: the Ministry of Education develops the concept of educational policy and allocates funds for the development of universities.

The policies of the federal authorities and states are harmonized on issues such as duration of study, holidays, study programs and mutual recognition of diplomas. Each federal state has its own education law, developed on the basis of federal legislation. Curricula and textbooks are approved by state governments, and teachers can choose from several approved textbooks, ensuring a diversity of opinions and approaches.

The German education system uses multi-level, differentiated, individual and subject-personal approaches. The multi-level approach takes into account different levels of complexity of the program material. A differentiated approach involves identifying groups of students according to knowledge and abilities. The individualized approach places students in homogeneous groups. The subjective-personal approach considers each student as a unique individual.

The classical education system in France is divided into four stages:

- preschool education (up to 6 years),
- school (from 6 to 11 years old),
- secondary (from 11 to 18 years),
- higher education (from 18 years old).

In France, public educational institutions exist alongside private schools, reflecting the principle of freedom of teaching enshrined in law. However, diplomas obtained from private schools are often not recognized at the state level. The exams are regulated nationally, ensuring the same standards for all students.

The main trends in the development of education in France include:

- Partnership between the state and business in the organization and implementation of primary vocational education. This is manifested in joint work to update professional certificates, curricula, teacher training, training financing and quality control.
- Diversification of forms of training and access to working qualifications. Includes public and private vocational schools, rotating education for youth 16-25 years old, correspondence and evening education, as well as various forms of continuing education.

- Increasing the level of training in the education system, including strengthening the status of vocational schools, increasing requirements for teachers and compulsory basic general education training for access to qualified training.
- The transition from the training of skilled workers in vocational schools to primary technical education, where the focus is on theoretical and general technical training. There has also been an increase in the use of research-based teaching methods and an increase in the number of teachers with higher technical education.
- Strengthening the scientific approach to teaching, including the use of modern scientific achievements in methods and didactics, as well as expanding the research base through the country's scientific centers.

### *Asian model of education*

In 1986, the Compulsory Education Law of the People's Republic of China established compulsory primary education in most regions of the country. In large cities and economically developed areas, compulsory first-level secondary education has been introduced.

One of the key features of education reform in China is to ensure access to education for the entire population. Today, almost 99% of children in urban China attend school, although before 1949 education was unaffordable for most, and illiteracy rates reached 80%.

In Japan, the education system is controlled by the Ministry of Education, Science and Culture Mombusho, prefectural and municipal education councils.

Technologies and approaches in education:

- universality of quality basic education;
- regular reforms ensuring the evolution of the school system;
- a strong structure outside of state compensatory training;
- studying and using world experience in education and upbringing;
- reliance on the best national pedagogical traditions.

The table 1 presents a summary analysis of the considered education models.

*Table 1 – Analysis of education models of some countries*

National models	Peculiarities
USA	Individualization of consciousness and adaptation of the individual to the global market economy, preparing a person to function in competitive market conditions.
United Kingdom	Focus on preserving traditions, modernization and introduction into the global educational space.
Germany	Vocational and technical specialties with an emphasis on early vocational guidance, which helps a person understand his future life goals and plans
France	Freedom in the organization and distribution of the teaching process is one of the forms of freedom of expression
China	Training of personnel for real sectors of the economy and careful monitoring of developers of target programs.
Japan	The fixed main goal of education, aimed at developing positive personality traits, as well as compulsory higher education

Thus, a number of features have been identified that are also developmental limitations.

### *Education system in Kazakhstan*

The education system in Kazakhstan includes educational institutions, governing bodies and educational programs that regulate the educational process. The education system is managed at three levels: state, regional and municipal. In cities, local administrations control the educational process.

Educational institutions include:

1. Preschool institutions: nurseries, kindergartens, preschool development centers help families in raising children from 1 to 6 years old and preparing for school.
2. General educational institutions: schools, gymnasiums and lyceums provide basic knowledge and comprehensive personal development. Education includes three levels: primary (4 years), basic general (9 years) and secondary (11 years). Basic general education is compulsory.
3. Professional institutions: lyceums, colleges, institutes and universities prepare specialists. Vocational education is divided into primary, secondary and higher education.
4. Postgraduate education: doctoral studies to deepen scientific knowledge and obtain scientific degrees.
5. Institutions of additional education for adults: courses for advanced training and retraining of specialists.
6. Special (correctional) institutions: schools and boarding schools for children with developmental disabilities.

7. Institutions of additional education: music and art schools, creativity centers aimed at developing children's talents.
8. Institutions for orphans and children without parental care: orphanages providing education, treatment and upbringing.

The International Standard Classification of Education (ISCED) allows the educational achievements of different countries to be compared and their progress tracked. ISCED, adopted at the 36th session of UNESCO, helps to collect and present statistical data at the national and international levels. The 2011 edition added new categories of educational levels, which makes it possible to better track the development of educational systems. The ISCED classification includes nine levels, each of which is coded for ease of analysis.

*Table 2 – Levels of education*

Level of education		Number of years	ISCED level
Preschool education		4	0
Primary general education		4	1
Basic general education		5	2
Secondary general education	Vocational education	2 / 3-4	3, 4, 5
Higher education	Higher education	4-5 / 3-4	6
Master's degree		2	7
Doctoral studies		3	8

Monitoring and a system of indicators and indicators of the Sustainable Development Goals (SDGs) in education in Kazakhstan are carried out through a number of mechanisms aimed at achieving global and national goals. As part of the UN 2030 Agenda, Kazakhstan has committed itself to achieving 17 goals, including 169 targets and more than 200 global indicators, of which 10 targets and 12 indicators directly affect the education sector.

Kazakhstan has developed a national SDG monitoring system adapted to local conditions. This makes it possible to take into account the specifics of national education and set additional indicators that correspond to national priorities. The system carries out regular reviews and develops recommendations for improving performance at the regional and national levels. Data on the education system of Kazakhstan:

1. Enrollment of children in preschool education:
  - In 2023, the enrollment rate of children in preschool education reached 98%, which corresponds to one of the key indicators of SDG 4.2.1.

- Within the framework of the Balapan state program, more than 3,000 preschool organizations were created, which significantly increased access to education for children aged 3 to 6 years.
2. Student performance:
    - According to the Committee on Statistics, in 2023 the average literacy rate among children aged 10-14 years was 99.7%, which is close to the SDG target 4.6.1.
    - As part of the Digital School program, more than 5,000 interactive classes were introduced, which improved the quality of education and student performance.
  3. Higher education:
    - Kazakhstan strives to increase the share of graduates receiving higher education. In 2022, this figure was 59%, which is comparable to the level of advanced countries and corresponds to SDG indicator 4.3.1.
    - Measures have been taken to expand access to higher education for socially vulnerable segments of the population, including through the provision of more than 30,000 grants annually.
  4. Inclusive education:
    - In 2023, more than 50% of schools in Kazakhstan were adapted for children with special educational needs, which is part of the implementation of SDG 4.a.1. These schools have special conditions, including a barrier-free environment, the use of assistive technologies and teacher training to work with children with special educational needs.

Despite significant successes, challenges remain in the field of monitoring SDGs in education in Kazakhstan. One of them is the lack of sufficient statistics on some indicators of the “second” and “third” levels, as well as the need to adapt global methodologies to local conditions.

At the same time, Kazakhstan actively participates in international initiatives, such as testing new methodologies and participating in pilot projects aimed at improving statistics and monitoring in the field of education. The Statistics Committee of the Republic of Kazakhstan continues to work to expand the set of indicators and improve the monitoring system, which will make it possible to more accurately assess progress in achieving the SDGs in the field of education.

## Conclusions

In terms of official reporting, national governments have primary responsibility for monitoring SDG indicators. National data should be used

to inform countries' official reports on progress towards the SDGs, and then fed into the UN SDG database, which is used to analyze regional and global progress. Along with this, it is necessary that constant work be carried out to improve statistical methodological work on collecting data on all SDG indicators, including ESD.

The existing challenges regarding relevant and real information on data and necessary policy measures for the SDGs is the lack of data on most indicators.

Education indicators for sustainable development to track SDG progress have great potential for assessing and monitoring the SDGs, improving data quality is necessary for assessing and quantifying data.

As conclusions and recommendations for indicators for assessing sustainable development goals in education in Kazakhstan and their monitoring, several key aspects can be identified:

1. High coverage of primary and basic education.

Kazakhstan has a wide network of preschool and general education institutions, which ensures access to education for most children. Basic general education is compulsory, which is in line with SDG 4.

2. Problems with quality and access to additional education. Although the system of vocational and additional education is developed, there is a need to improve the quality of programs and the availability of advanced training and retraining courses.

3. Uneven access to education in rural and urban areas. Differences in the level and quality of educational services between urban and rural areas can create barriers to equality in education, which is contrary to the principles of SDG 4.

4. Insufficient consideration of individual characteristics of students. There is a lack of adapted programs for children with special needs in the educational system, which can impede access to quality education for all categories of the population.

5. Incomplete compliance of educational programs with international standards.

ISCED is an important tool for international comparison and monitoring, but requires deeper implementation into the educational practice of Kazakhstan.

Recommendations for improving monitoring of the assessment of education for sustainable development indicators:

1. Introduction of regular monitoring of the quality of education using ISCED.

Tools: Use ISCED to regularly evaluate and compare educational programs in Kazakhstan with international standards.

- Target: Increasing the competitiveness of Kazakhstani educational institutions at the global level and achieving SDG 4.
2. Improving access to quality education in rural areas.  
Tools: Development of professional development programs for teachers in rural schools, improvement of the infrastructure of educational institutions in remote areas.  
Target: Ensuring equal access to quality education for all children, regardless of where they live.
  3. Development and implementation of adapted educational programs for children with special needs.  
Tools: Introduction of specialized programs and teaching methods, advanced training of teachers to work with children with special needs.  
Target: Ensuring inclusive education and equal opportunities for all categories of students.
  4. Strengthening interaction with international educational organizations.  
Tools: Development of joint educational projects with international organizations, participation in global educational initiatives.  
Target: Increasing the level of educational services and ensuring compliance with international standards.
  5. Development of a system for assessing and monitoring the sustainability of education:  
Tools: Introduction of indicators for sustainable development of education, regular updating of data and their analysis, harmonized data collection and exchange. Raising awareness and sharing experience on the activities of the education system both in primary school and in higher education to achieve the SDGs, including with an emphasis on SDG 4, through the integration of the experience of the educational community into the SDG monitoring processes.  
Target: Achieving SDG 4 targets, including ensuring inclusive, equitable and quality education.  
Indicators for assessing and monitoring SDGs in education.
1. Coverage and accessibility of education:
    - Proportion of children enrolled in preschool, primary and secondary education.
    - Proportion of students receiving vocational education in urban and rural areas.
  2. Quality of education:
    - Average student results in key subjects (mathematics, science, language).
    - Level of qualifications of teachers and availability of professional development programs.

3. Inclusion and equality:
  - Number of children with special needs enrolled in inclusive educational programs.
  - Proportion of educational institutions adapted for children with special needs.
4. Infrastructure and material and technical base:
  - The number of educational institutions equipped with modern equipment and available for the use of information and communication technologies.
5. Compliance with international standards:
  - Evaluation of educational programs according to the ISCED scale.
  - The share of educational programs that meet international requirements and standards.
  - Defining criteria to ensure data quality and procedures for collecting quality data.

These measures and indicators will help Kazakhstan not only achieve sustainable development goals in education, but also create a system that promotes sustainable and equitable development of the entire society.

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# *Towards a Sustainable Penitentiary System: Education, Rehabilitation and Restorative Justice in the 2030 Agenda*

by *Francesca Latino*<sup>\*</sup>, *Rosabel Martinez-Roig*<sup>°</sup>, *Francesco Tafuri*<sup>^</sup>

## *Abstract*

The Prison System is a key element of Criminal Justice, but it has numerous critical issues related to overcrowding, structural deficiencies and the difficulty of implementing effective re-education programs. This article analyzes the role of detention not only as a punitive measure, but as an opportunity for the rehabilitation and social reintegration of prisoners. Through the 2030 Agenda for Sustainable Development, in particular with Goals 4, 10 and 16, the importance of a fair and sustainable approach to the Prison System is highlighted. Innovative strategies, including education, vocational training, and psychological support, are explored to reduce recidivism and promote restorative justice. The article proposes a critical and constructive vision on prison policies, emphasizing the need for structural reforms that guarantee respect for human rights and collective security.

*Keywords:* Penitentiary system; Rehabilitation; 2030 Agenda; Recidivism; Restorative justice; Education.

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## **Introduction**

The Prison System represents a fundamental element for the protection of public safety and the application of justice, but at the same time raises issues of great social and ethical relevance (Santoro, 2022). The condition of prisoners, often characterized by overcrowding, structural deficiencies and limited access to re-education programs, constitutes a significant obstacle to

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social reintegration and the reduction of recidivism (Basilisco, 2024). Detention, in fact, should not be exclusively a punitive measure, but an opportunity to rehabilitate prisoners and prepare them for a constructive re-entry into society. However, the difficulties in ensuring effective rehabilitation paths are aggravated by a lack of attention to the individual needs of prisoners, insufficient economic resources and a legal system that often struggles to combine the concept of punishment with that of social reintegration (Bertaccini, 2021).

In this context, the 2030 Agenda for Sustainable Development, adopted by the United Nations, offers a framework to promote a fairer and more sustainable approach to prison management. Goals such as Goal 16 (Peace, justice and Strong institutions) and Goal 10 (Reduction of inequalities) underline the need to reform the prison system so that it respects human rights and promotes paths of social inclusion. In addition, Goal 4 (Quality Education) highlights the importance of access to education as a tool to reduce inequalities and provide new life opportunities for prisoners (Ismail et al., 2021).

A sustainable prison system must therefore consider the implementation of strategies that favor not only respect for fundamental rights, but also the creation of conditions that make the period of detention a concrete opportunity for a better future. The adoption of effective re-education models, based on education, vocational training and psychological support, is essential to ensure that punishment is not just a punitive measure, but an opportunity for change (Castro-Martínez, 2021). Re-education must include literacy programmes, specialisation courses and work inclusion projects, with the involvement of companies and institutions that promote social reintegration. At the same time, psychological and social support plays a crucial role in strengthening individual resilience and counteracting the factors that can lead to recidivism.

Another central aspect in the sustainability of the prison system is the promotion of dignified living conditions within the penitentiary institutions. Respect for human rights, the protection of prisoners' physical and mental health and the reduction of prison overcrowding are key elements for a more humane and effective approach to detention. Good practices adopted in some European countries show how investing in rehabilitation programmes and adequate infrastructure can contribute significantly to social security and crime reduction. The adoption of a model based on restorative justice, involving not only the prisoner, but also the community and victims, could represent a turning point for a fairer and more effective system (Martinez, Lima, & Celes, 2023).

This article explores the challenges and opportunities of a sustainable prison system, analyzing strategies and good practices to promote the social reintegration of prisoners with a view to restorative justice and sustainability. The aim is to offer a critical and proactive vision of Penitentiary Policies, highlighting the role of the Community and the Institutions in ensuring that detention represents a path of growth and not an experience of permanent exclusion. In addition, possible reform models that could make the prison system more efficient, respectful of rights and truly capable of returning aware and empowered individuals to society will be analyzed, thus reducing the recidivism rate and improving collective security.

## **Sustainability and the Penitentiary System: A Regulatory Analysis**

Talking about sustainability in the Penitentiary System means going beyond the simple management of prisons and addressing a deeper issue: the role of punishment and the treatment of prisoners (van Zijl-Smit, & Dünkel, 2021). To understand how to guarantee dignified detention conditions and effective reintegration paths, it is essential to start from the rules that govern the system, both at European and Italian level. Understanding the current legal framework allows us to assess the extent to which the principles of dignity, rehabilitation and social reintegration are effectively protected and applied in prisons.

The European Union and the Council of Europe have developed several regulatory instruments aimed at ensuring respect for fundamental rights in prisons and promoting a fair and sustainable penitentiary system (Kemp, & Tomczak, 2024). At the European level, the protection of human rights in prisons is mainly guaranteed by the European Convention on Human Rights (ECHR), a treaty that protects the fundamental freedoms of people, including prisoners. In particular, Article 3 prohibits any inhuman or degrading treatment, a principle that has proved central to the jurisprudence of the European Court of Human Rights (ECtHR). Several times, in fact, Italy has been condemned for the overcrowded conditions of its prisons, considered incompatible with respect for human dignity (Della Morte, 2013).

An emblematic example is the Torreggiani judgment of 2013, with which the ECtHR ruled that the situation in Italian prisons constituted a systematic violation of Article 3 of the ECHR. The Judges pointed out that the problem did not only concern the lack of space in the cells, but also the poor quality of services, limited access to training and work activities and the often inadequate hygienic-sanitary conditions. This ruling forced Italy to take

urgent measures to improve the penitentiary system, even if the problem of overcrowding persists today.

In 2006, the Council of Europe adopted the European Penitentiary Rules (RPE), a set of Guidelines to ensure minimum standards of treatment of prisoners (Chiola, 2022), which include:

1. Respect for human dignity and the prohibition of inhuman treatment.
2. Access to education and vocational training to promote social reintegration.
3. The right to adequate medical care, including psychological assistance.
4. The need to reduce the use of detention through alternative measures, such as probation or home detention.

In particular, Recommendation R (2006)2, which concerns the treatment of prisoners, stresses the importance of ensuring access to education, vocational training and employment as essential tools for the rehabilitation and reintegration of prisoners. The recommendation also highlights the need to ensure access to mental and physical health, as detention can often result in significant harm to prisoners' health (Archibong, & Obikili, 2023).

Another important recommendation of the Council of Europe is Resolution 87(3), which sets minimum standards for the treatment of prisoners. It includes guidance on how to improve living conditions in prisons, prevent violence between prisoners, and ensure that prisoners have access to educational and employment programmes. Council of Europe Resolution 73(5) also suggests measures to encourage the use of alternative measures to detention, such as probation and community treatment, to reduce the number of prisoners and promote social reintegration. These rules, although not binding, represent an important reference for Member States in improving prison policies (Pech, 2022).

Furthermore, the European Union, although it does not have direct competence in criminal matters, promotes cooperation between Member States to improve detention conditions and promote the social reintegration of prisoners. To this end, the EU has funded a number of programmes, including the Justice Programme (2014-2020), which supports initiatives related to the protection of prisoners' rights, vocational training and the reduction of recidivism. The European Union has also developed networks for the exchange of good practices to foster cooperation between Member States and improve reintegration policies (Martufi, 2024).

In Italy, the Penitentiary System is based on a key principle established by the Constitution. Article 27 states that "*punishments may not consist of treatment contrary to the sense of humanity and must aim at the re-education of the convicted*" (Della Casa et al., 2023, p. 89). This means that prison

should not only be a place of punishment, but also a space for growth and change.

Starting from this principle, in 1975 the Penitentiary Ordinance - Law 354/1975 was introduced, a law that regulates prison life and the rights of prisoners (Menghini, 2024). This legislation represented an important step forward, introducing concepts such as:

1. The right to education and vocational training.
2. The possibility of working inside or outside the prison.
3. The granting of alternative measures to detention, such as probation or entrustment to social services.

The treatment of prisoners, in fact, must be oriented towards re-education, and this implies that education and vocational training programs are offered, as well as opportunities for work. Article 15 of Law 354/1975 provides that education and professional training courses are organized within the Penitentiary Institutes, in order to equip prisoners with skills that can facilitate their reintegration into the world of work once they leave prison. Alternative measures to detention, such as home detention, community service, semi-liberty and suspension of sentences with probation, are important tools to facilitate the reintegration of prisoners into society. Italian law provides that prisoners who show signs of repentance can benefit from these measures, in order to facilitate a gradual transition to social life (Rosati, & Vaccarelli, 2024).

In the years since, the legislature has tried to make the system fairer and more effective. A key moment was 1986, with the approval of the Gozzini Law, which expanded the use of alternative measures and introduced incentives for prisoners who participate in re-education courses. This reform marked an important change, demonstrating that detention is not always the best solution, especially for less serious crimes (Testa, 2010).

However, despite these advances, the Italian prison system continues to face many difficulties. Overcrowding is still a serious problem: Italian prisons regularly house more inmates than they can actually accommodate, with negative consequences on the well-being of inmates and on the possibility of carrying out training or work activities.

To try to improve the situation, a Reform of the Penitentiary System was introduced in 2018, which aimed to strengthen reintegration programs and make alternative measures more accessible. However, many of these measures have not been fully implemented, due to political resistance and lack of resources (Della Bella, 2018).

The analysis of European and Italian legislation therefore highlights the need to rethink the prison system in a sustainable way. The sustainability of

the prison system requires greater alignment with international standards, through:

1. Investments in education and training for prisoners to promote social reintegration.
2. Structural reforms to reduce overcrowding and improve detention conditions.
3. Increased use of alternative measures to detention for minor crimes.

Only through an integrated approach between legislation, social policies and investments in rehabilitation programs will it be possible to guarantee a sustainable, fair and effective prison system.

## **The Sustainability of the Prison System in the Context of the 2030 Agenda**

The prison system represents one of the most complex challenges in the legal, social and economic fields (Cavotta, & Rosini, 2021). Penitentiary structures, although they are fundamental tools for the application of justice, are not always able to effectively pursue the objective of reintegrating prisoners into society, but rather, in many cases, end up perpetuating a vicious circle of exclusion and marginalization. In this context, the 2030 Agenda for Sustainable Development offers a framework that can guide a profound reform of the penitentiary system, promoting a more humane, equitable and sustainability-oriented approach.

The 2030 Agenda, adopted by the United Nations in September 2015 (UN, 2015), is a global plan of action to improve people's lives, protect the planet and promote prosperity. With its 17 Sustainability Goals (SDGs), it seeks to address the most serious issues of our time, including poverty, inequality, climate change and peace. Although many of these goals may seem far removed from the topic of the prison system, a deeper analysis reveals how prison management is closely interconnected with the principles of social justice, education, human rights and sustainability.

Goal 16 of the 2030 Agenda is explicitly dedicated to the promotion of peace, justice and strong institutions. This goal recognizes the importance of building peaceful, just and inclusive societies, and ensuring access to justice for all. The prison system plays a crucial role in this process, as prison management should not only be geared towards punishment, but also towards the recovery and reintegration of prisoners. Detention should not be seen as a goal in itself, but as a tool to foster the recovery of people who have committed crimes, preparing their return to social life in a positive way (Fabris, & Longobardi, 2023).



In this sense, Goal 16 calls for a reform of the prison system that not only respects the fundamental rights of prisoners, but also promotes their psychological, social and economic recovery. The promotion of restorative justice, which includes the active participation of victims, prisoners and the community, can be an effective model of sentence management. Restorative justice is based on the idea that crime harms not only the state, but also the people involved, and therefore it is necessary to repair such damage so that all actors can contribute to the construction of a more just society (Hope Sr, 2020).

In addition, the creation of stronger and more efficient prison institutions, capable of guaranteeing respect for human rights and access to educational and therapeutic pathways, is a fundamental condition for achieving this goal. Countries that have invested in restorative justice-oriented prison reforms have seen significant improvements in their societies, with reduced recidivism rates and increased community trust in the justice system.

Goal 10 aims to reduce inequalities, both within and between countries. Social, economic, and cultural inequality is one of the main factors contributing to crime and incarceration. People from disadvantaged socioeconomic backgrounds are often more vulnerable to involvement in criminal activities and, once incarcerated, face additional difficulties in accessing opportunities for reintegration into society. These inequalities are amplified by the prison system, which is not always able to offer equal opportunities to all prisoners (Artyukhov et al., 2022).

The sustainability of the prison system therefore also passes through the elimination of these inequalities. Investing in programmes that offer all prisoners, regardless of their origin, the opportunity to access education, vocational training and psychological support is a key step in reducing inequalities within prisons and preparing prisoners for social reintegration. The inclusion of prisoners from marginalised backgrounds in vocational education and training can reduce the risk of recidivism and increase the likelihood that they will become productive and positive members of society after release.

Prison policies, therefore, should include measures to ensure equal treatment opportunities, not only in terms of access to educational and employment resources, but also in relation to the mental and physical health of prisoners. The health of prisoners, in fact, is another crucial aspect in the fight against inequalities, since psychological care and support inside prisons are often insufficient.

Education is one of the most powerful tools to break the cycle of poverty and crime (Colglazier, 2015). Goal 4 of the 2030 Agenda, which promotes quality and inclusive education for all, is of fundamental importance in the

context of the prison system. Imprisoning a person without offering him or her the opportunity to study, train or acquire skills means drastically reducing his or her chances of reintegrating into the labour market and society. Prisons, therefore, must be places where education is not only a right, but a concrete opportunity to build a different future for prisoners.

Targeted educational programs, ranging from primary school to vocational specialization courses, are essential to improve the quality of life of prisoners and to adequately prepare their reintegration into society. Countries that have adopted education-oriented prison policies have seen lower recidivism rates and a greater ability of prisoners to reintegrate into the labor market (Barros Filho et al., 2023). In addition, education in prison also has a positive impact on prisoners' families, as often, through education, the cycle of poverty and inequality involving future generations is broken. Investing in prisoners' education not only fosters individual growth, but also contributes to collective prosperity by reducing inequalities and improving social security.

To make the prison system truly sustainable, a radical change is needed that goes beyond simply building new facilities or increasing staff. The sustainability of the prison system must be understood as a continuous process that integrates social innovation, the search for creative solutions and collaboration between institutions, non-governmental organizations and local communities. The adoption of models of restorative justice and social inclusion, such as prison work in communities or the inclusion of prisoners in environmental rehabilitation projects, represents a form of innovation that can benefit both prisoners and society. The creation of spaces for dialogue between prisoners and the community, in addition to reducing social isolation, makes it possible to build a culture of collective responsibility and solidarity (Imandeka et al., 2024).

In summary, the sustainable prison system, which is inspired by the principles of the 2030 Agenda, not only respects human rights, but also promotes social inclusion, education and rehabilitation of prisoners, contributing to the construction of a more just, secure and prosperous society. The real challenge, therefore, lies in the transition from a punitive prison system to one oriented towards re-education and reintegration, which not only reduces recidivism, but also favors the creation of opportunities for all.

## **Targeted Educational Programs in the Penitentiary System: From Primary School to Professional Specialization Courses**

Education within the penitentiary system is a crucial element for the

social reintegration of prisoners. The possibility of accessing training programs ranging from school to professional specialization courses offers inmates an opportunity for redemption and retraining, reducing the risk of recidivism and favoring a path of social and work reintegration (Giordano et al., 2017).

Education in the penitentiary is an essential tool to fill the educational gaps of many prisoners, many of whom have interrupted their school career early. In Italy, the education system in prisons provides access to literacy programs for those who have not completed primary school, secondary education and, in some cases, university courses in collaboration with national universities.

The main objective is to provide prisoners with basic and advanced skills that can improve their ability to enter the world of work once their sentence has been served. In addition, education helps to develop critical and reflective skills, promoting a positive change in the approach to life and respect for rules. Learning contributes to the construction of personal identity, increasing awareness and confidence in one's abilities.

In addition to school education, many prisons offer vocational training courses in specific sectors, such as carpentry, catering, tailoring, agriculture and IT. These paths allow prisoners to acquire technical and practical skills that can be spent in the labor market, reducing the risk of post-prison social exclusion.

Some prisons collaborate with companies and cooperatives to offer internship and job placement opportunities, creating a concrete bridge between the period of detention and the return to civilian life. Work experience in prison not only helps to develop professional skills, but also teaches the value of discipline, respect for rules and teamwork (Giuseppini, & Infurna, 2021). A further important aspect is the promotion of craft workshops inside prisons, where prisoners can create products for sale. This activity not only has a positive impact on their training, but also helps to generate a sense of responsibility and belonging, providing concrete feedback for the efforts made.

A fundamental aspect of educational programs in prison is the inclusion of Motor and Sports Activities. Sport is not only a means of maintaining good physical and mental health, but also represents an important educational and rehabilitation tool (Latino, & Tafuri, 2024). The integration of Motor and Sports Activities in the Penitentiary System is one of the practices that has been shown to have positive impacts on the rehabilitation of prisoners. Physical activities, in addition to improving the physical health of prisoners, contribute to the improvement of psychological well-being, promote self-discipline and socialization, and have a positive effect on self-esteem. In

several European countries, including France, Germany and Italy, models have been tested that use sport and physical activity as tools for social reintegration, aligning with the Sustainable Development Goals of the 2030 Agenda, in particular with Goal 3 (Good health and well-being) and Goal 16 (Peace, justice and strong institutions). Through involvement in structured sports activities, inmates learn core values such as respect for rules, stress management, and teamwork. Disciplines such as football, volleyball, basketball and gymnastics help to reduce tensions within prisons, improving relations between prisoners and between them and the supervisory staff (Libbrecht et al., 2024).

In some facilities, specific programs are promoted that involve collaboration with sports instructors and psychologists to use motor activity as a tool for personal growth. These paths promote awareness of one's body, control of emotions and the ability to manage conflict situations in a non-violent way. A successful example is represented by initiatives involving prisoners in tournaments and sporting events organized with external teams. This type of interaction with the outside world helps to strengthen the sense of belonging to society and to build relationships based on trust and collaboration (Norman, Sonoda, & Ricciardelli, 2024).

Targeted educational programmes in the prison system are a key element in the social reintegration of prisoners. Education provides the tools for a new life, professional training opens up concrete job opportunities and sport teaches respect for the rules and the value of collaboration. Investing in these pathways does not only mean improving the quality of life of prisoners, but also contributing to the safety of society as a whole, reducing the recidivism rate and promoting real social inclusion (Conway, 2024).

A further step forward could be the creation of even more personalized educational paths, based on the attitudes and previous experiences of prisoners. Psychological and pedagogical support could be intensified to accompany prisoners on a path of personal growth that goes beyond just technical training. Finally, greater synergy between institutions, companies and associations could further expand the opportunities for work and social reintegration for those who have served their sentence.

## **Best Practices: Successful European Experiences**

The European Penitentiary System has seen significant evolution over the last few decades, with many countries adopting innovative models to improve detention conditions, promote the rehabilitation of prisoners and ensure their social reintegration. Such models of prison reform can serve as

an example for other states. In these countries, prisoners have access to training programs, psychological assistance and support for reintegration into the labor market (Atuase, & Filson, 2024). The approach, which combines respect for human rights with a strong commitment to rehabilitation and re-education, has led to very low recidivism rates compared to the European average. The United Nations 2030 Agenda, with its commitment to sustainable development and social justice, has offered a regulatory framework that has pushed penitentiary systems to reform. The aim is to improve the living conditions of prisoners, reduce recidivism and strengthen the role of justice as a tool for equity and social inclusion (Hogan et al., 2024).

### ***Education as a Tool for Change: The Case of Finland***

Finland stands out for its approach oriented towards education inside prisons. Finnish prisons are designed to foster the re-education of prisoners, and access to educational programs is considered essential for recovery and social reintegration. Education in prison is part of a broader vision of prison reform, which considers punishment as a transitional phase, not aimed at humiliating, but at fostering change (Rautanen, Harald, & Tyni, 2024).

In Finland, educational programs are very varied and include literacy courses, general education and even university courses. Some prisons also have agreements with universities and colleges to allow inmates to obtain diplomas and degrees. This approach allows prisoners to acquire useful skills to reintegrate into society after release, decreasing the likelihood that they will return to commit crimes. Education is therefore seen not only as a mode of recovery for the individual, but also as a tool for the reduction of crime at the social level (Rantanen, Järveläinen, & Leppälahti, 2021).

The Finnish approach aligns perfectly with Goal 4 of the 2030 Agenda, which aims to ensure inclusive and equitable quality education by promoting learning opportunities for all. Education within the penitentiary system is not only a human right, but a factor that facilitates social integration, reducing the marginalization of ex-prisoners.

### ***Work as a Tool for Reintegration: Norway's Model***

Norway has developed a prison system that places great emphasis on work as a rehabilitation tool. Norwegian prisons, especially Bastøy, are examples of how work can be positively integrated into the recovery process. In these facilities, inmates are involved in a variety of work activities,

including farming, crafts, and running small businesses, such as shops and workshops (Abdel-Salam, & Kilmer, 2023).

The job is not only a means of keeping inmates busy, but it is thought of as an opportunity to develop practical skills that can be useful once inmates are released. The ability to earn a salary while in prison helps inmates develop a work culture, which prepares them for reintegration into the labor market once their sentence is over. In addition, work offers an opportunity for social responsibility: many programs involve inmates participating in projects that benefit the community, such as maintaining parks, building infrastructure, and managing natural resources. These projects are seen as a form of giving back to society (Martens, & Crewe, 2024).

The Norwegian approach is reflected in Goal 8 of the 2030 Agenda, which promotes decent work and inclusive economic growth. The Norwegian prison system has shown that prison work, if well managed, can significantly reduce recidivism, improving the possibility for prisoners to reintegrate into the social and economic fabric after release.

### ***Mental Health and Psychological Well-Being: the Netherlands Model***

Another central issue for the improvement of prisons in Europe is the treatment of prisoners' mental health. According to numerous studies, a significant percentage of inmates suffer from psychological disorders, such as depression, anxiety, and psychosis. These problems can be exacerbated by difficult detention conditions, creating a vicious cycle that increases the risk of recidivism.

The Netherlands is an example of how an integrated approach to mental health can make a difference in the rehabilitation of prisoners. In many Dutch prisons, inmates have access to psychological and psychiatric support programs, which include individual counseling, group therapy, and medical interventions. If necessary, inmates are transferred to specialized psychiatric facilities, where they can receive intensive treatment (van de Rijt, van Ginneken, & Boone, 2023).

This focus on mental health is part of a broader approach that aims to ensure the psychological well-being of prisoners, reducing the conditions of stress and trauma that often characterize detention. Mental health management thus becomes a fundamental element in improving rehabilitation prospects and reducing the risk of recidivism (Bosma, Groenhuijsen, M. & de Vries, 2021).

The Dutch approach aligns with Goal 3 of the 2030 Agenda, which aims to ensure health and well-being for all by reducing inequalities in access to

health care. Properly treating prisoners' mental health problems not only improves their quality of life, but also represents an investment in the safety and health of society as a whole.

### ***Human Rights and the Dignified Treatment of Prisoners: The Case of Sweden***

Sweden is an example of how human rights principles can be integrated into the prison system. The Swedish system is based on the idea that prisoners also have the right to live with dignity, to receive fair treatment and to be treated as human beings, regardless of their prison status. Swedish prison facilities are designed so that inmates can maintain a certain level of autonomy and self-determination, with living spaces that reflect a more community-like environment (Svensson, 2021).

In Sweden, prisoners have access to a wide range of activities, including training, cultural activities, sports, and volunteering. The aim of these activities is to promote their well-being and prepare for their social reintegration once their sentence has been served.

The Swedish approach aligns with Goal 16 of the 2030 Agenda, which promotes peaceful, just and inclusive societies, and which includes strengthening justice and treating all fairly. Treating prisoners with respect and dignity is not only a fundamental right, but also helps to prevent marginalisation and promote an effective reintegration process into society.

### ***The “Sport and Rehabilitation” Program in France***

One of the successful examples of the integration of physical activities into the prison system is the “Sport and Rehabilitation” programme launched in France. This program has as its main objective the use of sport as a tool for social rehabilitation. It has been introduced in a number of French prisons, with the support of physical educators, coaches, and psychologists, who work together to promote physical activity as a means of positive change for inmates (Müller, Meek, Blessing, & Mutz, 2023).

The proposed activities range from general gymnastics to the practice of individual and team sports such as football, basketball, volleyball, and running. In addition to promoting physical health, these activities also aim to develop important values such as cooperation, emotional management, stress management and the ability to work in a team, which are crucial for reintegration into society. The program also offers learning opportunities on healthy and correct lifestyles, educating inmates on the importance of physical activity and psychophysical well-being.

The program has given good results, reducing the recidivism rate among participants and improving the psychological conditions of prisoners, who have found in sport a means to vent tensions, deal with discomfort and improve their emotional well-being (Sempé, 2021).

The French programme aligns with Goal 3, which promotes health and well-being. Physical activity in prison, in fact, not only improves physical health, but also contributes to the prevention of psychosomatic illnesses and depression, reducing isolation and stress related to detention.

### ***The “Physical and Sports Education” Program in Germany***

In Germany, several prisons offer physical education and sports programmes as part of social reintegration activities. These programs are designed to provide inmates with not only an outlet for energy, but also a set of psychological and social tools that can help them overcome the difficulties of prison life. The main focus is on promoting physical education that is not only limited to physical exercise, but also encourages behavioral change, self-confidence, and cooperation (Herold et al., 2023).

In addition, in some German prisons, professional training courses have been activated to become sports instructors, which allow prisoners to acquire a qualification that can be spent in the world of work, once their sentence has been served. The program has led to greater collaboration between inmates, reducing internal conflicts and improving the management of violence in prison.

The German programme responds to Goal 16, which aims to promote peace, justice and build inclusive institutions. Sport becomes a tool for social inclusion, promoting the construction of a more cohesive community within prison facilities, reducing violence and promoting mutual respect.

### ***The “Sport in Prison” Project in Italy***

In Italy, the “Sport in Carcere” project, promoted by the Ministry of Justice in collaboration with the University of Milan, is an example of how physical activity can be used to promote the reintegration of prisoners (Bozzuto, 2022). This project involves several Italian prisons, where inmates have the opportunity to participate in motor activity programs, ranging from gymnastics to the practice of individual and team sports. The project also includes training courses for prisoners interested in becoming sports technicians, through training courses that allow them to acquire professional skills that can be used in the labor market. One of the most interesting aspects of this program is the integration of sports activities such as football, which



has been shown to promote social inclusion, collaboration and self-discipline. Sport, in this context, has become a metaphor for change and hope, offering prisoners an escape from the stress of prison life and a concrete possibility of improving their psycho-physical condition (Lovecchio, Zago, & Mainardi, 2022).

The “Sport in Prison” project aligns with Goal 3, which promotes health and well-being, but also with Goal 4, which encourages quality education for all. The inclusion of physical activities in prison programs not only improves the mental and physical health of prisoners, but also provides educational opportunities, helping prisoners acquire new skills that can aid their reintegration into society.

## Conclusions

Creating a fairer, more humane and sustainable prison system is a complex challenge, but necessary to ensure public safety and respect for fundamental rights. Policies that promote education, vocational training, psychological support and restorative justice can transform the period of incarceration into an opportunity for growth and change. Only through an integrated approach that combines re-education, respect for human dignity and the promotion of social reintegration will it be possible to reduce recidivism and build a more just and inclusive society. A more sustainable prison system not only cares about the material conditions of detention, but places rehabilitation, respect for human rights, prevention of recidivism, reduction of environmental impact and promotion of the well-being of prisoners at the center of its transformation.

European experiences of success in the Penitentiary System show that the adoption of good practices in line with the Sustainable Development Goals of the 2030 Agenda not only improves the lives of prisoners, but leads to a wider benefit for society. Educational rehabilitation, work, mental health and respect for human rights are essential elements to build a Penitentiary System that does not punish, but promotes recovery, reintegration and the prevention of recidivism. The adoption of these practices can contribute to a more just, inclusive and peaceful society, in line with the sustainable development goals outlined in the 2030 Agenda.

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# *The use of consulting to increase the sustainability of the higher education institutions in times of crisis*

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## *Abstract*

*The relevance of this research* is studying the impact of consulting projects on the sustainability of higher education institutions (HEIs) in times of crisis, adaptability, environmental quality, and well-being. *The aim* is to identify the main factors that affect the sustainability of HEIs in times of crisis, as well as to analyse the impact of consulting services on ensuring this resilience. The study employed the methods of consulting activity analysis, a crisis sustainability survey, and the Workplace Wellbeing Questionnaire. Spearman's rank correlation coefficient and structural equation modelling were used for statistical analysis. The reliability of the research methods was tested using the Cronbach's alpha. *The results* of the study revealed that 55% of the success of consulting projects is directly related to satisfaction with the work environment. Team experience showed an impact coefficient of 42%, and company resources – 38%. All obtained p-values were lower than 0.05, which indicates the statistical significance of the found relationships.

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The study confirmed that the sustainability of HEIs in times of crises depends on the success of consulting projects, which, in turn, correlates with satisfaction with the work environment. The experience of the team and the resources also have a significant impact on success. The results indicate the need to develop consulting services to increase the sustainability of educational institutions. The research prospects include the impact of consulting services on innovation and the quality of the educational process, as well as the role of technological innovations in sustainability in times of crisis.

### **Keywords**

educational environment, consulting programme, educational innovations, crisis conditions, sustainability

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## **Introduction**

The sustainability of higher education institutions (HEIs) during crises is crucial amid global uncertainty, political instability, and technological shifts (Brandon, Lombardi & Shen, 2024). HEIs play a dual role in training skilled professionals and maintaining socio-economic stability, necessitating systemic strategies for resilience (Stein, 2024). Crises, such as the COVID-19 pandemic and the Russian-Ukrainian war (Symochko et al., 2024), highlight vulnerabilities and the need for adaptive measures. The 2022 Russian invasion severely disrupted Ukrainian HEIs, causing infrastructure damage, population displacement, and financial strain (Tsybuliak et al., 2024).

Economic instability, inflation, and reduced funding further challenge HEIs, forcing them to seek alternative income sources and optimize resources (Lelyk et al., 2022; Ganguli & Waldinger, 2024). Technological advancements and increasing competition also demand curriculum updates and infrastructure investments (Palyvoda et al., 2024). Consulting services are vital in addressing these challenges, offering strategies for resource optimization, innovation, and crisis management (Block, 2024). This study explores how consulting enhances HEIs' resilience, drawing on crisis leadership and organizational resilience research (Purvis et al., 2024; Stein, 2024). By focusing on consulting as a strategic tool, it aims to improve HEIs' adaptability and sustainability in turbulent times.

Despite existing research, the role of consulting in crisis management for HEIs remains underexplored. Further study is needed on how consulting can optimize management, mitigate economic and social shocks, and integrate new technologies to maintain educational quality during crises.



*The aim of the study* is to identify key factors that affect the sustainability of HEIs in times of crisis and analyse the role of consulting services in ensuring this resilience. The aim involved the fulfilment of the following research objectives:

1. Analyze the effectiveness and identify the main directions of consulting projects in Higher Education Institutions (HEIs), as well as determine their strengths and weaknesses.
2. Examine the satisfaction level of teaching and academic staff with the HEI educational environment and their well-being in the workplace.
3. Determine the relationship between the successful implementation of consulting programs and the overall well-being of the HEI work environment.

## Methods

### 1. Design

The study employed a mixed-methods approach, combining quantitative and qualitative data collection techniques. The research design was applied, aiming to address specific practical challenges faced by higher education institutions (HEIs) in Ukraine during times of crisis. The study was conducted in several stages, as outlined in Figure 1.

*Figure 1 - Research stages*

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Research stages	<b>Preparatory stage (September-December 2023)</b> Determining the subject area, aim, and objectives of the study. Forming the sample, selecting the necessary tools and methods. Preparing data for analysis.
	<b>Research phase (January - September 2024)</b> Assessment of directions, effectiveness and problems of consulting projects in HEIs. Research on the level of satisfaction of teaching and academic staff with the educational environment in universities. Analysis of the teachers' well-being in their workplaces. Identification of the relationship between the successful implementation of consulting programmes and the well-being of the working environment in HEIs.
	<b>Final stage (September - October 2024)</b> Analysis of the obtained results. Drawing conclusions.

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*Source:* created by the authors of the research

Figure 1 illustrates the sequential stages of the research process, including data collection, analysis, and interpretation. The design was chosen to ensure a comprehensive understanding of the impact of consulting projects on HEI sustainability.

## 2. Participants

A total of 100 participants from five Ukrainian universities were included in the study. The sample consisted of 67 teaching staff and 33 academic staff, with ages ranging from 26 to 72 years. The universities were selected based on their regional diversity, institutional profiles (e.g., technical, humanitarian, economic), and active engagement in consulting activities. The inclusion criteria ensured representation from different regions of Ukraine and a variety of institutional contexts. The universities included in the sample are presented in Table 1.

*Table 1 – HEIs whose consulting activities were analysed during the study*

University name	Website	Region
Taras Shevchenko National University of Kyiv	<a href="https://knu.ua/en/">https://knu.ua/en/</a>	Kyiv
Lviv Polytechnic National University	<a href="https://lpnu.ua/">https://lpnu.ua/</a>	Lviv
Odesa Polytechnic National University	<a href="https://op.edu.ua/international/activity">https://op.edu.ua/international/activity</a>	Odesa
National University of Kyiv-Mohyla Academy	<a href="https://www.ukma.edu.ua/eng/">https://www.ukma.edu.ua/eng/</a>	Kyiv
National Technical University Kharkiv Polytechnic Institute	<a href="https://kpi.kharkov.ua/">https://kpi.kharkov.ua/</a>	Kharkiv

*Source:* created by the authors of the research

The choice of these universities is determined by the objectives of the study and the availability of materials for analysis in the open access. They represent HEIs of various specializations and sizes that are actively engaged in consulting activities. The sample also consisted of teaching and academic staff of the above-mentioned HEIs. The sample included 71 women and 29 men, with 61 participants holding advanced degrees (PhD, Candidate of Sciences, or Doctor of Sciences). Each university was represented by 20 respondents, ensuring a balanced distribution across institutions. Each HEI is represented by 20 respondents.

## 3. Data collection

Data were collected using three primary instruments:

1. *Analysis of Consulting Activities*. This method involved a comprehensive review of consulting projects conducted by the selected universities. Data were extracted from official university websites and internal reports. The

analysis focused on the effectiveness, achievements, and shortcomings of these projects.

2. *Survey on HEI Sustainability*. A 25-item survey was developed to assess the perceptions of teaching and academic staff regarding the sustainability of their institutions during crises. The survey used a 5-point Likert scale (1 = completely disagree, 5 = completely agree) and was divided into five blocks: academic sphere, financial sphere, social sphere, institutional sphere, and crisis resilience. The survey was administered via Google Forms.

*Workplace Wellbeing Questionnaire (WWQ)*. The WWQ was used to measure employee satisfaction and well-being in the workplace. This instrument was chosen for its validated reliability and relevance to assessing the work environment in HEIs.

The use of these instruments was justified by their alignment with the study's objectives and their established validity in previous research. Cronbach's alpha was calculated to assess the internal consistency of the survey and WWQ, with values exceeding 0.7, indicating acceptable reliability.

#### 4. Analysis of data

Data analysis was conducted using R Studio, with the lavaan package for structural equation modeling (SEM). The following statistical techniques were employed:

1. *Descriptive Statistics*. Mean scores and standard deviations were calculated for survey responses. However, given the limitations of presenting mean scores in bar charts, the results were visualized using ggplot2 to provide more meaningful insights.
2. *Spearman's Rank Correlation*. Spearman's correlation was used to assess the relationships between ordinal variables (e.g., Likert-scale responses). This non-parametric test was chosen due to the non-normal distribution of the data and the ordinal nature of the variables.
3. *Structural Equation Modeling (SEM)*. A covariance-based SEM approach was used to examine the relationships between exogenous variables (project success, team experience, company resources) and endogenous variables (satisfaction with the work environment, employee motivation, stress levels). Model fit indices, including CFI, TLI, RMSEA, and SRMR, were calculated to assess the model's adequacy. Additionally, discriminant validity and heteroscedasticity checks were performed to ensure the robustness of the results.

The SEM results were presented using a path diagram, which provides a clearer visualization of the relationships between variables compared to

tabular presentation. The path diagram was generated using the *semPlot* package in R.

## 5. Instruments

The study used validated and reliable instruments. The Workplace Wellbeing Questionnaire (WWQ), with Cronbach’s alpha above 0.8, ensured high reliability. A pilot survey with university staff achieved a Cronbach’s alpha of 0.78, confirming internal consistency. Data analysis used R Studio with peer-reviewed packages: *lavaan* for SEM, *ggplot2* for visualization, and *psych* for reliability analysis.

## Results

The study’s first stage analyzed university consulting projects, examining their focus areas, effectiveness, and limitations using official HEI websites. This data was synthesized into Table 2, showcasing the current state of consulting initiatives across Ukrainian universities.

*Table 2 – Status of implementation of consulting projects in some Ukrainian HEIs*

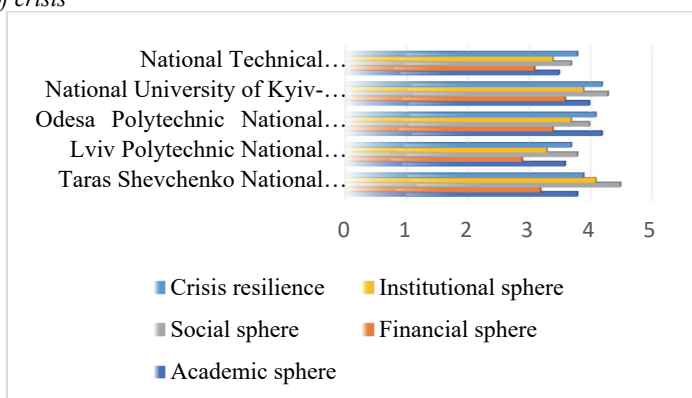
University	Focus Areas	Strengths	Weaknesses	Future Plans
<b>Taras Shevchenko National University</b>	Economics, Management, Law	Corporate partnerships, international internships	Few specializations, limited practical focus	New specializations, career center
<b>Lviv Polytechnic</b>	Tech, Innovation	Industry ties, startup ecosystem	Few MBA programs, few foreign faculty	New MBA programs, international partnerships
<b>Odesa Polytechnic</b>	Energy, Ecology, IT	Technical expertise, location	Limited international opportunities, digital skills gap	Global partnerships, digital integration
<b>Kyiv-Mohyla Academy</b>	Social Sciences, Humanities	Academic reputation, critical thinking	Lacks tech consulting, little hands-on training	More practical training, IT partnerships
<b>Kharkiv Polytechnic</b>	Engineering, Energy	Industry connections, research staff	Weak soft skills training, traditional methods	Curriculum updates, startup support

*Source:* created by the authors of the research

Ukraine’s leading universities offer diverse consulting programs, with key strengths including industry partnerships, experienced faculty,

engineering expertise, and international opportunities. Common limitations are narrow specializations and inadequate practical training. To assess student satisfaction with these programs, we conducted a survey (results in Figure 2).

Figure 2 – Results of a survey of teaching and academic staff on the university's sustainability in times of crisis



Source: created by the authors of the research

The histogram shows that the highest scores for all blocks are given to Odesa Polytechnic National University and National University of Kyiv-Mohyla Academy, in particular for crisis sustainability and the social sphere. Taras Shevchenko National University of Kyiv also has strong positions in the social sphere and crisis resilience. Spearman correlation coefficient was performed for statistical analysis of the data (Table 3).

Table 3 - Spearman rank correlation coefficients for different blocks

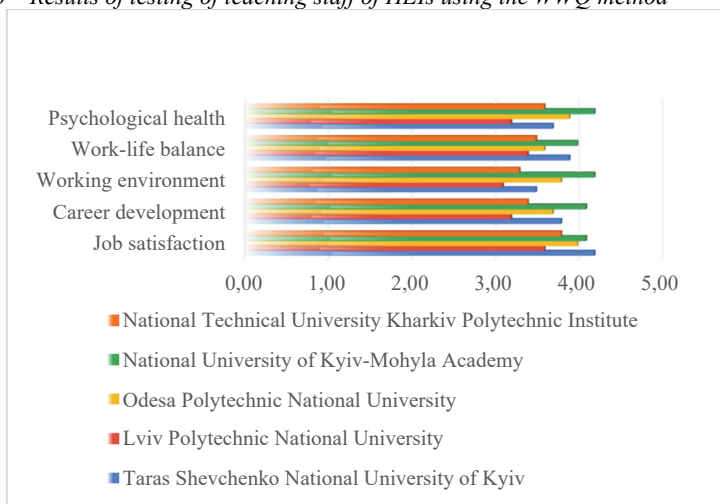
	Academic sphere	Financial sphere	Social sphere	Institutional sphere	Crisis resilience
Academic sphere	1.0	0.8	0.7	0.8	0.8
Financial sphere	0.8	1.0	0.8	1.0	1.0
Social sphere	0.7	0.8	1.0	0.8	0.8
Institutional sphere	0.8	1.0	0.8	1.0	1.0
Crisis resilience	0.8	1.0	0.8	1.0	1.0

Source: created by the authors of the research

The Spearman analysis reveals strong correlations (coefficients  $\approx 1.0$ ) between universities' financial health, institutional management, and crisis

resilience, indicating their interdependence. Financial stability particularly impacts crisis adaptation and resource management. Subsequently, we assessed staff well-being using the WWQ method (results in Figure 3).

Figure 3 – Results of testing of teaching staff of HEIs using the WWQ method



Source: created by the authors of the research

Kyiv-Mohyla Academy leads in staff satisfaction across career development, work environment, and job satisfaction metrics, followed closely by Taras Shevchenko University in job satisfaction alone. Lviv and Kharkiv Polytechnics trail overall, particularly in work-life balance (see Diagram). Endogenous variables are represented by satisfaction with the work environment, employee motivation, and stress level. The results of the analysis are presented in Table 4.

Table 4 - Structural equation modelling of the relationship between the successful implementation of consulting projects and satisfaction with the work environment of HEIs during the crisis

Variable 1	Variable 2	Path coefficient	Standard error	p-value
Project Success	Satisfaction with the working environment	0.55	0.12	0.001
Team Experience	Project success	0.42	0.15	0.025
Company Resources	Project success	0.38	0.13	0.01

Source: created by the authors of the research

Table 4 shows the relationship between successful implementation of consulting projects and satisfaction with the working environment of HEIs during the crisis. Project success and satisfaction with the working environment have a positive path coefficient of 0.55, indicating a significant relationship. The higher the success of projects, the higher the satisfaction with the working environment. The standard error (0.12) and the low p-value (0.001) confirm the statistical significance of this relationship. The obtained results indicate the importance of successful implementation of consulting projects for increasing satisfaction with the working environment.

## Discussion

This study highlights the role of consulting in enhancing HEI sustainability during crises, particularly in Ukraine. It identifies key factors like work environment satisfaction (path coefficient = 0.55,  $p < 0.001$ ), team experience (0.42), and company resources (0.38) as critical to project success, aligning with prior research on organizational resilience (Tsiligiris & Bowyer, 2021; El-Sabagh, 2021). Consulting has been vital for Ukrainian HEIs, enabling online learning transitions and international partnerships amid war-related challenges.

The findings emphasize the importance of supportive work environments, consistent with Malinka et al. (2023) and Schofer, Ramirez, & Meyer (2021). Team experience and resource optimization, as noted by Fia, Ghasemzadeh & Paletta (2023), are also crucial, especially in resource-scarce contexts like Ukraine. However, limitations include narrow specializations and insufficient practical focus in consulting projects, echoing concerns by Zawacki-Richter (2021) and Ying & Wright (2023).

The Workplace Wellbeing Questionnaire (WWQ) revealed higher job satisfaction and resilience at institutions like Kyiv-Mohyla Academy, supporting the link between positive work environments and project success (Parker & Hyett, 2011). The study contributes to crisis management literature and offers practical recommendations for HEIs and consultants.

## Limitations

There are several limitations of this study. First, the sample of participants may not be representative enough, which limits the generalizability of the results to other HEIs. Second, the study may be influenced by the subjective assessments of the respondents, which may distort the data on satisfaction and success of consulting projects.

## Recommendations

To enhance the sustainability of higher education institutions, we recommend actively leveraging international cooperation in consulting. By engaging global partners to develop and implement modern consulting models, universities can integrate cutting-edge management approaches. This strategy will help institutions maintain competitiveness while promoting sustainable development.

Specifically, HEIs should prioritize adopting international best practices in consulting, incorporating findings from foreign research to improve educational quality, and fostering multilingual learning environments to facilitate joint projects with overseas partners. These measures will create a more dynamic, globally connected academic ecosystem while strengthening institutional resilience.

## Conclusion

Understanding the key factors of sustainability and the role of consulting services helps managers to make strategic decisions. The results form the basis for further research in the field of management of educational institutions, increasing their adaptability and sustainability in the future. The study found that the sustainability of HEIs in times of crisis largely depends on the success of consulting projects.

The obtained data can be useful for HEI administrations when developing crisis management strategies. They can also be used by consulting companies to adapt their services to the needs of educational institutions. Research prospects include studying the impact of consulting services on other aspects of the activities of HEIs, such as innovation and the quality of the educational process.

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...Un orologio, metafora del tempo, scandisce l'inizio di una sequenza catartica...

I valori, la conoscenza, la partecipazione e l'ambiente come i meccanismi di un orologio antico sono a vista, correlati e perfettamente sincronizzati tra di loro, e come gli ingranaggi di un meccanismo funzionante essi sono posti a sostegno del futuro dei giovani.

È così che il volto del giovane, ormai uomo, reso forte ed ottimista per la conoscenza acquisita, guarda verso il futuro, verso i suoi obiettivi, qui rappresentati dalla stella e dall'orizzonte: egli è pensoso ma anche sereno, poichè è certo di poterli raggiungere.

L'elemento acqua-mare, sintetizzato con due lievi onde marine, è l'ambiente ideale in cui tutti vorremmo perderci entro una dimensione temporale illimitata che va oltre la realtà.

*Federica Cappelli*